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GLEANINGS
IN
BEE CULTURE.

VOL. VI. 1878.

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IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles see our Twelfth Edition Circular and Price List found in Jan. No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting, for prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	" " waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees; 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 6 in. $1 50; 7 in. $1 75; 8 in	2 00
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
0	Cages, wood and wire cloth, provisioned, see price list	05
12	" " " per doz	50
	" Larger size double above prices	
20	Candy for bees, can be fed at any season, per lb	15
	" 1½ lbs. in Section box	20
	" " Eight lb. slab in L. frame	1 15
0	Cards, queen registering, per doz	06
0	" " " per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	" " without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	" " top only, per 100	1 00
15	" " bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
12	Duck, for feeding, and covering the frames—bees do not often bite it—per yard, (29 inches wide)	20
	Extractors, according to size of frame, $7 50 to 10 00	
	" inside and gearing, including honey-gate	5 00
	" Hoops to go around the top	50
	" " per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, pepper box style	10
25	The same, 6 qts, to be used in upper story	50
2	Files for small circular saws, new and valuable, 20c; per doz. by Express	2 25
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	" Vol's IV and V, each	1 00
0	" Vol. III, second-hand	2 00
0	" first five neatly bound in one	6 00
0	" " " unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives	1 00
	" " ½ doz	5 25
	" " ½ doz by Express	5 00
0	" " Curved point	1 15
	" " " " ½ doz	6 25
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	" " Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	" Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	20
0	Photo of House Apiary and improvements	25
0	Queens, 50c to $6 00. See price list	
2	Rabbets. Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 8 section boxes showing the way in which the separators are used, suitable for any kind of hive, see cut, p. 8,	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	" Catnip, good seed, per oz. 20c; per lb.	2 00
0	" Chinese Mustard, per oz	25
18	" Mellilot, or Sweet Clover, per lb	60
	" Motherwort, per oz. 20c; per lb	2 00
18	" Mignonette, per lb. (20c per oz)	1 50
	" Simpson Honey Plant, per package	05
	" " " " per oz	50
18	" Silver Hull Buckwheat, per lb	10
	" " " " peck by Express	75
18	" Summer Rape. Sow in June and July, per lb	15
5	Sheets of duck to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
10	Smoker, Quinby's (to Canada 15c extra)	1 50
5	" Doolittle's	25
25	" Bingham's $1 00; 1 50;	1 75
25	" OUR OWN, see illustration in price list	75
2	Tacks, galvanized, per paper	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of tarletan (almost as good)	50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned per square foot	15
2	Wire cloth, for queen cages	12
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, 14 mesh to the inch, per square foot	07

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

CLUBBING LIST.

We will send GLEANINGS—

With The American Bee Journal	($2 00)	$2 50
" The Bee-Keeper's Magazine	(1 50)	2 00
" Both the above Bee Journals of America		4 00
" American Agriculturist	($1 00)	2 25
" Prairie Farmer	(2 15)	2 90
" Rural New Yorker	(2 50)	3 25
" Scientific American	(3 20)	3 90
" Fruit Recorder and Cottage Gardener	(1 00)	1 75

[*Above rates include all Postage.*]

ITALIAN BEES.

Imported and home bred queens; full colonies and nucleus colonies; bee-keeper's supplies of all kinds. Queens bred early in the season. Send for catalogue.

9tf DR. J. P. H. BROWN, Augusta, Ga.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,

EDITOR AND PUBLISHER.

MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, JAN. 1, 1878.

But watch thou in all things, endure afflictions, do the work of an evangelist, make full proof of thy ministry.

◆

A FRIEND sent us a bottle of honey by mail. The box was broken, the letters and papers daubed with honey, and we had a hard matter to prevent our friend from being subjected to a penalty for sending glass and honey by mail. Honey should be sent in a tin box, soldered up, and in only small quantities even then. It is, probably, carelessness in such matters that has made the department so averse to allowing queens to be sent in the mails.

◆

ONE or two complaints have been made that bees would not eat the grape sugar, and the Davenport Factory sent us samples of both white and yellow to test; our bees take both with out any trouble at all, but we rather give the preference to the yellow. As an experiment, we fed a very large pailful to our bees in the open air, in one single warm pleasant day, just a few days before Christmas. We have as yet discovered no unpleasant features about it for wintering, but none of the colonies are confined to the grape sugar alone. We are now prepared to furnish it here, at factory prices.

◆

WE notice in the A. B. J., for Dec., an account of a revival of the Kohler process of getting queens purely fertilized. The experiment was made on the 18th of Oct., in Lima, O. The day was warm, but the bees were not flying much, until some warm honey was poured directly on the clusters of 3 nuclei. Of course, they very soon all took wing, and 2 of the queens were quickly fertilized. We do not learn whether the nuclei contained the drones as well as queens, but presume such must have been the case. A full account was given, of the discovery, in the A. B. J. several years ago.

IT is the 27th of Dec., and yet we have had warm April weather, with scarcely a bit of frost for the past two weeks. Those who have their bees in the chaff packed hives, can see them fly with perfect satisfaction, while those who have them in houses and cellars, would better get all out, or expect to suffer the consequences. Look out that none are starving, for they will start brood, and sometimes use up honey at an unheard of rate. Two years ago we had a similar winter, and some of our bees doubled their numbers in the middle of winter, and then starved. Look out!

MY friends, it "aint a mite of use" for you to keep asking how soon we can furnish dollar queens. If you should ask whether I thought it would rain next 4th of July or not, I could tell you, just about as well. We will notify you in GLEANINGS when they are ready, and that is about all I can say. If you choose to send in your money, we will fill your order in its turn but as I like to make promises that I can keep, I dare not promise before July. If we could make up queens and tie them up in neat little bundles during the winter as we do bee-hives, I would not be afraid.

ONE of our customers has ordered some Simplicity hives with the sides, as well as ends, rabbeted to hold frames. Small frames hanging crosswise, are to be used in these, and I confess, they look as if they would be "splendid" for rearing queens, and building up colonies. The frames will be a little smaller than the Gallup, for they are the usual depth of the L., and only about 13½ wide. They happen to be exactly right for holding 6 instead of 8, of the regular 4¼x4¼ section frames. As the hive is in no way injured for the regular long frame, it may be best to use these two sizes. They would be very nice for 3 framed nuclei, and for shipping bees, but it must not be forgotten that it would make much the same kind of trouble as two sizes of frames, even if they did both go in the same hive.

◆

IN the *B. B. J.*, for Nov., we are told of some "Yankee honey" that was analyzed, and the jar found to contain over 50 per cent of glucose. Our friend Perrine suggests that the name attached to the label on the jar should have been given, that we might know *whom* to blame, instead of having the stigma rest on our whole nation. If the jar had no name on the label, and but the simple statement "American honey," the probabilities are that it never came from America at all. Spurious goods, the world over, are labeled whatever is in most demand, but those circulating them are very careful that no responsible name is attached. American honey is now being sent to London in such large quantities that it would not be strange at all, if counterfeits began to appear. Weed them out by all means, and hold up the offenders without mercy.

◆

IN our Dec. No., we quoted from the *N. Y. Utica Observer*, to the effect that Capt. Hetherington had 3000 colonies of bees, and that they had given, on an average from 45 to 50lbs. per colony. There have been several remonstrances from his vicinity in regard to the matter, and it has been reported that he really owns but about 800. We have written twice to the Capt., to know the truth of the matter, but although we enclosed stamps, no reply comes. Thurber's report in regard to Doolittle's crop has also occasioned unkind expressions. I think our friends are a trifle hasty; Doolittle did sell 20,000 lbs, to Thurber, but neither he nor they stated that it was all of his own raising. He purchased perhaps more than ½ the amount of his neighbors, or rather it was shipped in his name. May not such have been the case with Hetherington's? Shall we not all be a little more careful in giving statements that *may* get into print?

Hives Cheap.

Material ready to nail for standard Langstroth hives. Portico, 10 frames, (beveled top bar) bottom board and cap, in prices ranging from 75c to $1,00 each, according to quantity wanted. Sample hive $1,50. Our *favorite* the "Modest" at same prices.

We are prepared to beat the world on Honey and Section Boxes.

Harbison section, 5 to 10 M. per M	$6 50
" " Less than 5 M, per M	7 50
" " " " 1 "	8 50
Dovetailed sections, any size from 4¼x4¼ to 5x6, 5 to 10 M, per M	8 00
" " Less than 5, per M	8 50
" " " " 1 "	9 00

Circulars for 1878 will soon be ready—Send for one.

J. OATMAN & SONS,

1tfd Dundee, Kane Co., Ills.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	.25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present." Novice and Blue Eyes*	.25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	3
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1.00	9	4
11—*Photo Medley, Bee-Keepers of America*	1.00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

MASSACHUSETTS AGRICULTURAL COLLEGE

GLEANINGS IN BEE CULTURE

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. JANUARY 1, 1878. No. 1.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more,* 60c. *each. Single Number* **10c.**

MY EXPERIENCE. NO. 1.

PREPARATION FOR BEE-KEEPING.

I KEPT bees last season, and, if Mr. Editor will allow me, I am going to tell you something about it. For several years, I had been contemplating bee-keeping, and had prepared myself for it in the following manner:

I subscribed for a periodical devoted to bee culture; obtained the back numbers of the same; bought and *studied* books on bee culture; made a scrap book, into which I pasted bee-keeping articles cut from agricultural papers; and carried a note-book in my pocket, into which I copied articles that could not be cut out. I visited apiarists, saw how they managed their bees, discoursed theories, plans, &c.; and whatever I learned of them, that I considered valuable, I wrote in my note-book. In fact, I learned all that I could about bees, from every available source.

After I had been about two years collecting "bee matter," I made an index, by sewing together twelve sheets of legal cap, each page being devoted to a subject. Thus, the first page was "Wintering," the second "Artificial Swarming," the third "Queen Rearing," &c. I then read and looked over every book and paper that I had, the title of each article or item was written upon the appropriate page of the index, and the page and name of the book or paper in which it was found, was written after it. I found it very convenient.

I also kept a record of the time when most of the honey producing plants and trees were in bloom, and the length of time they were in blossom, so that I could manage my bees accordingly, when I should commence keeping them.

After I once commenced bee-keeping, it sometimes almost made me tremble, to think of the mistakes I should have made, if I had known little, or nothing, about bees. You open a hive and find the state of affairs different from what you expected. "What shall I do?" is the question: and it is a question that must be answered immediately. You have not time to go and "read up" on the subject, therefore you must be "posted" at all times. Lack of bee-keeping knowledge is, I think, *one* of the greatest causes of "blasted hopes."

BUYING BEES.

Dec. 23d, 1876, I bought six swarms of a man, who gave me my choice out of eighteen. He told me that he had lost nine swarms the previous season, by their going to the woods. I chose those which were heaviest, and in hives that had an old appearance; he having told me that each one of his old swarms had swarmed the previous season. After I had selected them, he said—with a chuckle—that every swarm but one, was an old swarm. I told him that I had just as soon have them as young swarms, which seemed to surprise him some. I saw he did not know these old swarms would have vigorous young queens. I told him that, in the spring I should transfer them to movable comb hives. He thought I was foolish; said one of his neighbors had a swarm transferred and divided, and it dwindled away and died. I told him they were not properly managed; and if his bees had been in such hives, and managed in the right manner, he would not have lost his nine swarms. After all my "talk," however, he still thought that keeping bees in the old-fashioned way, was best.

W. Z. HUTCHINSON, Rogersville, Mich.

I earnestly recommend the above course to all our A B C class. With the flood of bee matter that is now before you, you have it in your power, to make yourselves masters of almost all that is known on the subject. If you use your own common sense, you can very soon learn to sift the wheat from the chaff.

A PLEA FOR THE TOADS.

IT is to be regretted that bee-keepers can find no way to deal with the few bee-eaters, but to destroy them. Man is a disturber of the balances of nature, and is always, himself, sooner or later the greatest sufferer by the disturbance. Of all our enemies, none can compare, in the amount of injury they inflict, with insects. Only two of the class directly minister to our wealth and our wants (the bee and the silk-worm), whilst thousands prey upon our industries. It behooves us to seek every ally that can aid in keeping them in check. It is admitted on all hands that if we could have left the birds and reptiles undisturbed, as we found them on this continent, we would not now have to fight the bugs and worms. Of all these natural allies of man, the most harmless, and one of the most efficient, is the toad.

Instead, therefore, of "going round with a hoe every morning and burying every one—and not alive," take you a corn-popper or some convenient trap, and carry every one you can catch, into your garden. One toad domesticated under a squash vine, will insure you a crop. The toad is the only thing that readily eats the squash bug, and potato beetle. You say yes,—because he will eat anything that *moves*—and bees too. Exactly so; but it is so easy to protect the bees, and still have hundreds of toads for the garden. My plan (adopted also by my neighbors) is very simple. It consists of four little pieces of plank, 8 or 10 inches wide and 6 or 8 feet long, with which I make a little fence, over which Mr. "Bufo" is not able to hop. In fact, I make the fence or frame first, by setting the plank on the spot selected for my next hive—fastening them up with little stubs at the corners. I then fill this little box about half full, or at least 2 or 3 inches deep with clean sand, so as to give sufficient elevation and drainage. The sand (saw-dust is one of the unattainables in this vicinity) leveled perfectly, I set the hive in, a little to one end, so as to give them a wide play ground in front.

This little fence is a relief and may be made as ornamental as you please. For a lawn hive it might be made hexagonal or octagonal, and of wire cloth, or other metal work, at small cost. One small apiary is protected by 4 fencing plank 16 feet long, which inclose the whole. Thus the bees are cherished and the toads saved for their legitimate work.

LAWRENCE JOHNSON, Holly Springs, Miss.,

I fear the little fence would hardly keep our toads away from the hives, but I may be mistaken. For an apiary of 100 hives the fences would also prove rather expensive I fear. I am very glad you spoke of the corn-popper, for it will be just the thing to carry them off in, if they only don't travel back again.

QUERIES ABOUT HIVES.

TALL AND SHALLOW FRAMES FOR WINTERING.

WILL the Langstroth frame, as you use it in chaff hive, winter as well as a deep frame like the American?

I think a shallow frame, even better for wintering, if the apartment is made small, as we have directed, for the bees can then cluster clear to the bottom board and keep even that warm. With a deep frame, there is always a cold space below the bees. Large apiaries have been wintered in L. frames without the loss of a single colony, but we have few, if any, such reports from deep frames. Even Doolittle with all his skill, and with his small Gallup frame, reports a much smaller number of colonies each spring, than the fall before.

WIDE OR NARROW HIVES.

Would it be advisable to make the Simplicity wider, so as to hold 4 wide frames in lower story? This would make the upper story more cumbersome, but give necessary surplus room without a third story.

Many experiments have been made with wider hives, and we have this season tried just the arrangement you propose, but the outside sections were very imperfectly filled; I suppose they were too far from the brood. The width of the hives, as we make them, is I think about right, if an upper story is used; and this we can not afford to dispense with, unless the colony is very small. A third story will seldom, if ever, be needed if the sections are removed as fast as filled and capped.

SIZE OF SECTIONS.

Throwing aside the convenience of having the sections fit the frames of your hive, would you advise 4¼x4¼ in size, in preference to larger?

I would prefer sections 4¼ inches square to any other size for several reasons, aside from their just filling an L. frame.

BEST HIVE FOR COMB HONEY.

Do you think I can obtain as much comb honey, using a 2-story Simplicity or chaff hive, as I could from a Quinby, Adair, or Gallup, using their frames and other arrangements?

I think you will get just as much from the Simplicity, as from any of the hives you have mentioned. On account of the chaff packing, I think the chaff hive, (or house apiary, which amounts to the same thing), would give better results than any hive that does not protect the surplus apartment from extreme changes of temperature. There was very little swarming among the bees in the house apiary, and they are much better provisioned than the out-door Simplicity hives.

CHAFF HIVES; WHY THEY ARE TWO-STORY.

Could not a chaff hive be made, single story? I am pretty sure I would not like the two stories together.

A chaff hive could be made single story, of course, but to get the best protection for winter, and for surplus, as I have just mentioned, you would need a chaff upper story also. Now, even if you could manage such an arrangement, you would have a joint between the two that would be almost sure to let in frost and cold winds. I find it a very easy matter to handle the frames in the lower story, and I can look at the bees during this pleasant December weather almost as easily as in the summer time. I have only to raise the light cover with one hand, the chaff cushion with the other, then turn up one corner of the duck, and there they are, as snug and bright as if frost were unknown. Is not this better than tearing down a lot of unsightly boxes filled with chaff and loose straw, every time you wish to take a look at your bees? A chaff hive costs more than a one story Simplicity it is true, but it is always a *two* story hive, and only costs $1,00 more than a two story Simplicity, besides having a much larger upper story.

Do you not make your broad frames with metal corners?

We do not use metal corners for the broad frames, nor is it desirable, for we do not want the bees to get above them at all. A little more care is needed in replacing them, to avoid killing bees, but cases of sections of any kind, *must* be handled slowly and with care, compared with handling combs for extracting.

AMOUNT OF ROOM NEEDED FOR SURPLUS.

What do you find to be the average surplus room a stock requires (in lbs.) for comb honey? for extracted?

THEO. VAN ALLEN.
Adams Station, N. Y., Dec. 4th, 1877.

Doolittle uses a surplus capacity of about 45 lbs. if I am correct; we use from 50 to 80 1 lb. sections at one time. If you give too much room, you hinder the bees by making their chamber too cool. If you do not give enough, they are very apt to swarm, unless they have constant supervision. For extracted honey, much depends upon the season. Some seasons it will do to extract the honey as fast as gathered; at other times, their hives may be full clear down to the lower outside corners, and still the honey will be like sweetened water. In such a case I would raise up the upper story, and put a third under it; they will ripen and seal it up nicely in this position, and the empty story between the two, will be filled with a rush. Even where a colony is bent on swarming, this will start them at work. Friend Betsinger who has just paid us a visit, insists that we lose much by giving them so much room, which would be true, were we working with section boxes, and advises that the honey be all extracted, every other day if need be, to give them room. To get the thin honey ripened, he would let it stand in shallow vessels protected by gauze or some thin fabric. I have tried both ways, and am inclined to think that honey ripened artificially, will never have the pure rich flavor of that which is left in the care of the bees. I grant that he will get more, but I think ours will be much nicer. You see my friend, how much is to be considered, before we can decide upon the amount of room needed for surplus.

TEASEL CULTURE.

WE are requested by several to give the mode of Teasel Culture. The plant is biennial as a rule, although a part of the plants (the smaller ones) may not produce heads till the third year, and in that case they are called "Voors." The ground is prepared much the same as for corn, being marked but one way, the rows being from 3 to 3½ feet apart. The seed is then sown, and as a rule, left for the rains to wash the dirt over it, as it is sown as early in the spring as the ground can be worked. Some, however, slightly brush the seed in. The plants when they first come up are very small, and the first hoeing is a tedious operation being about the same as that required for beets or carrots. The plants are hoed, or *should* be, three times. Farmers usually raise a part of a crop of beans or turnips with them the first year. One heavy draw-back on Teasel Culture, is that they are very liable to winter kill by having a thaw, and the weather turning cold suddenly, so as to freeze the plant when there is water in the crown, which entirely destroys it. An open winter is very bad for Teasels. The second year, during the month of May, they are passed through with a cultivator, and slightly hoed, when they are left to run, as it is termed. The "kings," as they are commonly called, are heads at the top of the stalks, and commence to blossom about July 10th, continuing in bloom about a week or 10 days, opening first in the center of the head, blossoming toward the tip and base, and ending off at the base. As soon as the blossoms fall off they are cut, cured, and shipped to manufacturers for the purpose of taking the nap from cloth. The "middlings," as they are termed, commence to blossom when the kings are about half through, and the "buttons" come last, making from 20 to 25 days of bloom from the commencing of the kings to the ending of the buttons. The middlings and buttons receive the same treatment as the kings, and all are mixed and sold together. They are sold by the thousand, 10 lbs. making a thousand. An acre will yield from 100 to 250 thousand. At present they bring about 75c per thousand, but years ago the price was from $2. to $5.00. Bees work on them all hours of the day, and no matter how well basswood may yield honey, you will find them at work on Teasel at all times; and I have never known Teasel to fail to secrete honey except in 1876.

The honey is very thin, and much evaporation is required to bring it to the consistency of basswood honey when first gathered. We have many times thought, if Teasel could come just after basswood, it would be of great value; but, coming as it does *with* basswood, it is of no great advantage, except that it usually lasts from 6 to 8 days after basswood is past.

G. M. DOOLITTLE.

Borodino, N. Y., Dec. 10th, 1877.

ASTER HONEY, MICE, AGE OF BEES, &c.

We are studying economy here in good earnest. The locust destroyed our crops, and there was nothing raised in this country, worth naming. From about the middle of May until the 3d of July, bees could not get a drop of honey nor a pellet of pollen. Some allowed their bees to starve; I fed mine enough to keep them alive. Basswood opened the 16th of July. From that time till Oct. 1st, there was a continuous flow of honey. We got honey enough to help us over the hard times.

My hives are heavy with honey, and my bees are perfectly quiet. Say to J. W. Murray, one of my neighbors has had Italians 7 years and he told me he had lost but 2 swarms, and those through carelessness. My River Styx queen is now going through her third winter. I wintered 12 last season and have never lost an Italian; the only trouble we have had in this region, is mice, and honey from the aster; the aster honey candies at the bottom of the cell, while at the mouth of the cells it is very thin and watery, and ferments, standing in drops on the outside of the combs. Our honey, this fall, was mostly from the aster. The goldenrod was destroyed by plant lice.

The way I winter my bees: I make my shelves on posts with a pan, bottom up, on top of the post, that ends the work of mice. I leave the entrance open ⅓ of an inch square. I then lay a stick across the frames, under the quilt, so as to leave a half inch space open at the end of every frame. I then examine, once every two weeks, by smelling of each hive; if I find one that is sour or damp, I roll back the quilt so as to give more ventilation. In that way I carried them through last winter just as nice as they were when put in. I am inclined to think that bees can be wintered better here where there is continuous cold weather, than where there are so many changes.

I put away a swarm of black bees last fall, that were queenless. In the spring I gave them an Italian queen. The 16th of July they were nearly one third black bees, and on the 26th day of July there was not a black bee to be found. Now suppose the locusts had stayed longer.

O. W. PARKER.

New London, Minn., Dec. 14th, 1877.

We have had several reports of honey candying in the cells, but I believe you are the first, friend P., to suggest that it comes from the aster; if it is the case, we shall have to add the item to ASTER, in our A B C. Has anybody else had a similar experience with the aster?

We have been troubled with mice in our honey house, but keep it shut up so closely, that none can get in, and to make assurance doubly sure, we always keep a trap baited with toasted cheese. The inverted pans are effectual, but do they not make your house a little awkward?

Smelling of the hive to see if anything is amiss, I think would be a pretty sure test; I guess we shall have to give you the credit of the invention. If the locusts had stayed longer, I think your bees would have stayed longer. In other words, I think that bees will live a year or more, if they can be kept from doing any work. The bees of a new swarm are soon gone, because they work so severely, while if they remained hanging on the outside of the parent hive, they might live months and remain young, so far as their ability to work is concerned. Does not this agree with your experience?

BEE HAWKS.

(Asilus Missouriensis).

I ENCLOSE a fly (I do not know the name) that kills bees. I have seen them often, about my hives, and several times seen them sucking the juice from the bodies of bees. They kill other insects and sometimes their own species; they do not eat the bodies, but thrust in their bill, quickly suck the blood, then drop the lifeless body and go in quest of other game. This one was sucking the body of a bee, in my melon patch, which angered me and I stole on him with catlike steps and knocked the life out of him with an empty sack which I had in my hand. They are very quick in their movements and it is very difficult to kill them. I have watched them very closely, for two summers, and have killed what I could; but doing my best, I do not kill one in ten. They are not numerous here, as in Kansas. There, I have seen hundreds in a day. Will you please say something about the fly in GLEANINGS, and give name? He is a villain of the darkest dye.

D. G. PARKER, St. Joe, Mo., Sept. 4th, ,77.

The insect is the same you sent before. The bee hawk, or bee killer *(Asilus Missouriensis)*, a ferocious two winged fly, which will be a serious pest if it ever becomes numerous enough to do great harm. I refer to it in my Manual. It is too quick to catch with a net to advantage, yet I know no other way to fight it. I have even known them to subdue the fierce tiger beetle in a square fight. I have caught several allied species here, but none seem to molest the bees.

A. J. COOK, Lansing, Mich., Dec. 14th, '77.

THE NORTH EASTERN BEE-KEEPERS' ASSOCIATION will hold its eighth Annual Meeting at the City Hall, Syracuse, N. Y., on the 6th, 7th and 8th of February, 1878. First session at one o'clock, P. M., of the 6th.

Papers on important subjects are expected from some of our own members as well as from eminent apiarists abroad. Among these may be mentioned an essay on "Recently Discovered Parasites of the Honey Bee, and their Connection with Successful Wintering."

The Marketing of Honey will receive special attention, and it is expected that initiatory steps will be taken toward supplying each member of the Association with reliable data from which he may judge of the market value of his products. Other changes are suggested of much importance to Honey producers. To secure satisfactory results a full attendance of this class if especially desired. We hope you will attend, also, please see that this notice is published in your local papers.

Canajoharie, N. Y.: December 17th, 1877.

P. H. ELWOOD, President.
J. H. NELLIS, Secretary.

AUSTRALIA.

IT is a long time since I wrote you, and I am sorry to say that I have no good news to send you. The whole country is parched up by a drouth, and when it will end, God only knows. Thousands have already been ruined by it. Cattle *and sheep* are dying in hundreds of thousands. It is a sight to travel through this country at this present moment; hardly a blade of grass is to be seen; and the water holes filled with dead and dying cattle. I am one of the suffering ones, and unless it breaks up very shortly, I see nothing but ruin for me and my family.

What puzzles me more than all the rest, is where the bees are getting honey from. I have never had more honey from my bees than I have had during the drought. So you see friend Novice that bees are to be depended upon, when many other things fail. I am sorry that I have not more of them. They beat cattle keeping in every way that I know of; in fact they have supported my cattle to a considerable extent. By the way, I must tell you that I have received a colony of bees from San Francisco, California. They sold for pure Italians, but when they arrived at my place I found the bees to be hybrids and bad ones at that. Not one bee in five had a single band on it, and the price paid for them was $60,00. So you see, after waiting for 6 years, I am doomed to disappointment at last. J. CARROLL. Bee-Master.

Queensland, Australia. Oct. 15th, 1877.

I fear friend Carroll you are too hasty in deciding in regard to the Italians. After so long a voyage, the bees could not well look other than poorly, but after some young brood is hatched out, I think you will find them quite different. It seems that our California friends are far better off than you, after all. We sincerely sympathize with you both, in your severe trials with the drouth, and hope ere this, you are rejoicing in plenty of rain.

BOX HIVE DEPARTMENT.

IT is some time since we have found anybody who would advocate, much less sustain, this department. Our friend Peters of Council Bend, Ark., has given up, if we are not mistaken, and as friend Heddon has at last "owned up" on Italian bees, we presume he has also on box hives. We have been waiting patiently for over a year, for his first installment of articles from practical experience with box hives and black bees, but as they don't come, I know of no better way than to take the task of keeping up the department, on my own shoulders, with the occasional lift that I may chance to get from some kind friend who will sympathize with me. Will you please, dear friends, collect and send me all the good reports you can possibly collect from box hives. We can have no Blasted Hopes here, for nobody expects anything, and therefore no one is ever disappointed. Here is one letter, already. Listen:

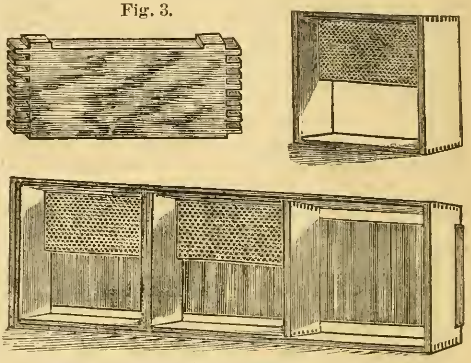
You say in GLEANINGS, that you will send one section box for 5 cents which you will please find enclosed, as I wish to see one and would like to have you get me up something that I can use on top of my box hives as they are so much less trouble than the frame hive. I have used the frame hive for many years, but I have very poor health and a large stock of bees and can take care of them with less trouble than the frame hive. I do not see why the section boxes or frames cannot be used on square hives as well as any, and as you have everything prepared for it, I think you might get me up something that would be all right. I make a business of selling bees **quite** largely. Now don't get out of patience in reading this long letter for you must expect such when you are doing business with so many people.

SIDNEY DRAKE.

Birmingham, Mich., Dec. 6th, '77.

Why, friend Drake, your letter was not nearly long *enough*. To be sure we will help, but I don't believe I shall try to make box hives, any more, for after I told how to make really good ones in Vol IV, and offered to make them for 50c. each, hives that could be taken apart too, we never sold but two, and nobody ever made any inquiries about them either. But, I will tell you how you can get just the nicest kind of honey in the little one lb. sections, from box hives and even black bees. Why they *do* say the gold medal honey was made by black bees; it *may* be that it came off box hives too; but my friend, we will not try for the medal, for then you know we might have our Hopes "Blasted" after all.

Fig. 3.



CASE FOR THREE SECTION BOXES WITH SEPARATOR.

Box hives are generally tall, something like the American hive, and as they do not present the surface for boxes over the brood combs that the Langstroth and other shallow frames do, we can not expect large yields of honey from them, unless we use side storing boxes as well as those on top. It would be rather more of a task to prepare box hives for side storing, than to make movable frames outright; and therefore we shall have to content ourselves with honey only from the tops of the hives, or honey in "caps," as many of the prices current still persist in terming all comb honey. I do not know how we can have a one lb. section in any better shape than our regular size 4¼x4¼x2, and to accommodate the greater part of the box hives, we will arrange them on the top of the hive, 3 long, and 7 wide; this will make 21 boxes in a single tier. If the colony is strong, we may give them a double tier, making 42 in all, and this is about as much as any box hive may be expected to furnish, unless the owner will take the trouble to remove the sections singly, as fast as they are filled, as Doolittle and Betsinger do. If you wish to get the best price for your honey, you must use the separators, and I do not know of anything that we can substitute profitably in the place of tin. Thin wood has been tried, and it will answer generally, but the bees are much more apt to build bits of comb fast to it, than to the tin, thus starting the honey to running when they are separated; besides, the wood occupies so much more precious room in the center of the surplus space, that I fear it would be really more expensive, in the end.

In the engraving above, we have shown a case to hold three boxes side by side. This case is made of the same material, and in the same way, as the sections themselves. As it is three times as long, and just high enough for the sections to slip inside, the expense will not exceed 2 cents each for the cases in the flat. A sheet of tin, 14x20, worth 8c., makes exactly 6 separators, and allowing 1 cent for cutting up the sheet and bending the ends over, we have separators at a cost of 1½ cents each. This will bring the entire cost of the cases. separator and all, put up ready to use, at about 4c, each. Now it is sometimes very convenient to be able to take the separators off the cases, to clean them from wax and propolis for instance, (boiling them in weak lye will remove every trace of it) and we cannot well do this, if they are nailed on. Therefore we bend the ends at right angles as shown in the cut, and then slip them into the shallow cut made in the side of each end piece of the case, as shown in figure 3. This cut is made at a very trifling expense through a whole bundle of the pieces, while they are screwed in the clamp to do the grooving, as we have before explained. Fig. 1 shows the case of 3 sections, with one of them removed, to give a better view of the tin separator.

These cases of three sections, can be used, not only on box hives, but on many of the tall patent hives; and if any one wishes, they can be used even on the L. hive, by turning them cross-wise of the frames. Whatever hive you use, pry off the top, or remove whatever obstruction there may be that will prevent them from coming close down to the brood combs. The purpose of the cases, besides holding the sections and separators, is to keep the wood of the sections clean, that it may be white and spotless when the honey is taken off the hive. Put as many on the hive as you can, side by side, and then draw them close together; this may be done by a wire or cord put round them, or a stick notched at each end will do. If you like, you can close the outside sections with a strip of glass, that you may see how the bees are progressing. The tin separators should come within about ¼ of an inch of the top and bottom, or the bees may bulge the honey out, so it will get injured. After you have got the sections all fixed, you will need to make a good close cap to fit over your hive. The expense of these sections, is not as much as for unsightly boxes, and the honey will sell for almost twice as much. If anybody is going to make box hives, I would most earnestly urge that they be made about the dimensions of our best frame hives; say 16x20 on top, and about 10 inches deep, outside measure.

FRAMES MADE ENTIRELY OF WOOD.

PROF. COOK, of the Michigan Agricultural College, has just paid us a visit, and if he always carries as much sunshine, peace and good will, wherever he goes, I earnestly hope he may keep on visiting. I do not mean that he approved of all he saw, nor that he told me I had done right in every particular, for he gave me a sound talking to in regard to conventions, and although I can not feel just as he does in regard to them, I have promised to aid in the matter so far as I can consistently.

The chaff hive, he pronounced a "humbug;" but I believe it was before he had seen one. I ventured,

"In what respect, friend C.?"

"On the ground of expense."

"How do you prepare bees for out-door wintering at the college?"

"We drive down four stakes, board them up, take off the covers to the hives, pack in the chaff, and then put on a cheap roof of boards."

I said nothing more at the time, but when in the apiary, I pointed out a chaff hive. He pronounced them handsome, as everybody does, and when I lifted the light cover with one hand, and the chaff cushion with the other and exposed the bees, in a little more than a second, then shut them all up in nice wintering trim almost as quickly, he —well I can not remember just what he did say, but he pretty soon asked,

"How much more does the Chaff hive cost, than the Simplicity?"

"Just one dollar more than a two story Simplicity, and the upper story has a capacity for four more frames."

"Is that all; why I supposed they were a great deal more expensive."

"The secret of it is, they are made of very cheap lumber; the greatest part of the expense is the work, and that should be done by the bee-keeper himself, during the winter season."

He also pronounced the Bingham smoker a better one than ours, because it was larger, and had a more pointed tube, the very reasons why I should not prefer it. He had never tried one of our larger sized ones. Now you must not suppose we looked cross because we did not agree; on the contrary, we had some of the most hearty laughs, as we went over our different experiences. Friend Betsinger, of Marcellus, was with us, and it was funny, to see how differently we had each of us honestly decided, on many points. We passed a lot of metal cornered frames, and friend Cook remarked,

"There is another 'humbug'."

"In what respect?"

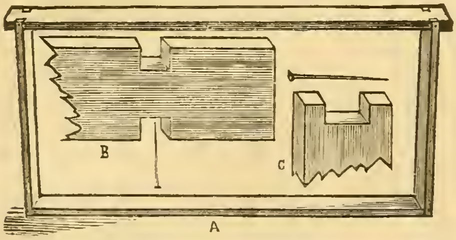
"They slide about in the hive too easily. We can not carry a hive from one part of the apiary to another, without having the frames slide all over to one side. The metal rabbets are a splendid invention, but they are enough. Our boys at the College like the wood frames just about as well."

"You object to the frames then, because they are too 'movable';"

"Yes, and because they are expensive; besides, they cut one's fingers in handling them."

"Now I like a frame so movable that we can at any time pick it up with one hand; to have it thus, we must have it rest on knife edges, or we shall have it fastened with propolis. With new colonies, the frames do slide about, unless fastened, but combs 3 or 4 years old, will always have attachments that will hold strong enough, unless the hives are to be shipped. I much prefer to have my frames loose; it is so seldom we move them, that the expense, as a whole, is but trifling, to fasten the frames when we want them fast. The wood slides easily on the metal rabbet, but in setting the frames down, bees will be cut in two in great numbers, if we attempt to handle them as rapidly as we do the metal frames."

I believe my two friends made no reply to this; one of them afterward admitted that he and Doolittle did kill some bees, but seemed to think it but a small matter comparatively. Now *I* am not going to kill my bees, no matter how slowly I am compelled to work. You all know how much I like to cheapen the articles we use about the apiary, if we can have them good; well, I know there are a great many of you, who, like friend C., would prefer a nice nailed frame, if it was very much cheaper. It is not a new subject to me for I have studied for years, on some plan of making a strong and stiff nailed frame, of thin strips of pine without any of the clumsy triangular corner blocks, so generally used. After my friends had gone, I——I shall have to explain that when the boys see me walking round our central stairway, they say a new bee hive, or honey extractor, is under way. Well, I walked round the stairway, and woke up and planned frames in the middle of the night, until I worked out the frame below. I think I deserve a little credit here, for I knew while working at it, that if I succeeded, it would spoil, in a measure, part of our business—the manufacture of our metal corners. You that have the foot power saws, can make them yourselves, very readily.



A represents a finished frame, and inside of it, our engraver has shown you an enlarged view of the top of one of the side bars C, and one end of the top bar B. The narrow neck of B is simply driven into the end of C, and fastened with the slender brad shown in the cut. The engraving is so plain, that you will all doubtless know how to go to work. Get some nice straight grained pine, and have it dressed accurately to ⅞. You had better make a brass gauge and send it to the planing mill; tell them to plane the stuff so the gauge will just crowd over it. The lumber should be the best seasoned you can find. We pay about $30.00 per M., for ours, already dressed. For the top bars, cut off lengths exactly 19⅛ inches; for the bottoms, 17⅝, and for the ends, 9⅛. These dimensions must be exact; they must not vary the thickness of a sheet of paper. It is just as easy to cut them exact as to do it any other way, if you only "attend to your business," and if your saw is not inclined to go just right, make it your business to *make* it go just right, before you commence cutting up your boards. I think the best way to cut boards all of a length, is to fasten a smooth bar just as far away from the saw, as the boards are to be long. First cut your boards off short enough to handle them; make the end straight and square, and then hold it *close* up to this gauge, while you cut off the lengths.

Now for the notches; this looks very formidable, at first, but it is very easily, and quickly done. We will sort out all the boards for the end pieces first. Make a groove clear across the end like C, with a wabbling saw, such as I have told you how to fix, several times. This groove should be about ½ inch wide, a little less if any thing; the depth should be just ¼ inch, if that is to be the thickness of your top bar. Of course, we are next to cut the four grooves in each of the top bar boards. Your saw is to be set with less wabble, that it may cut just the thickness of the end bars. We decided on a little less than ¼ of an inch for this. The depth is to be so as to leave just enough wood in the center for it to drive hard, into the end bars. Raising and lowering your saw table, will gauge this to a hair's breadth, if you are only careful. When your pieces are all grooved, you have nothing to do but rip off the strips just the right thickness. I have said nothing about the bottom bar and bottom corners, but you can make them in the same way, or as we do our section box stuff and metal cornered frames. Such frames can be made for 2½ cents each, and the work should be nice and exact, for that price.

DEPOSITORY OF
Blasted Hopes,
Or Letters from Those Who Have Made Bee Culture a Failure.

YOU will have to put me in "Blasted Hopes." I have about 3,000 lbs. of thick well ripened honey, and can sell it for 10c only, at retail. I will have to advertise you in GLEANINGS, for humbugging me; you recommended cheese cloth for strainers and I could not force my honey through with my hands, but it was all sealed. W. B. COLLINS.
Arrow Rock, Mo., Nov. 20th, 1877.

You might put some water with it, the way milk men do, friend C., but on the whole, I think it would be a better way to keep it in a warm room, until it *will* run through the cheese cloth. Make your cloth into a deep bag, and the weight of the honey will force it through. It just occurs to me that we do not quite belong in this department, but I can find nobody else to put here. I wonder if it *is* true that people who make failures don't say anything about it.

Some 5 or 6 years ago I was badly affected with fever. It was what I call B. fever. Well you see, I bought up all the bees I could, and in my first experience in transferring I got wounded on the end of my nose. My good wife, on being called, brought me some water in a tea cup, and I plunged my nose as near the bottom of the cup as was possible, so my nose, for the time, was out of the reach of bees. This was an evil omen, The second year I had about 50 stands, and then commenced the scourge among them. The next season I was able to put only 22 into winter quarters, and but 2 came out in the spring. In the fall I had but four, the next spring,0. This, with all the stings, and trials of poor Italian queens, trying to get the stripe on my blacks, and returning symptoms of fever from time to time, coursing through my bones deserves to me a place in "Blasted Hopes."

But I have purchased 3 more stands, and want to begin my A B C, which please send to me for the 25c inclosed. One who likes honey. H. F. Philps.
Faribault, Minn., Dec. 17th, 1877.

I enclose $1,00 for Gleanings, but that is more money than I have made from my bees this season. I have 23 hives, but my report is only "Blasted Hopes." Thanks to golden rod, however, they stored up nicely for winter, thus saving me the expense of feeding, for which I feel grateful.
E. W. Griswold, Essex, Conn., Dec. 5th, '77.

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WHAT KIND OF SECTION BOXES SHALL WE USE.

THE statement made on page 317. Vol. 5, perhaps requires a little explanation from me. Novice says, "A crop like Doolittle's could easily have been sold for 25c." By turning to page 212, same Vol., the reader will see that the best Novice could get offered for his honey at that time, in Chicago & Cincinnati was 15c. New York offered 18. Now within a week of the time that he was offered the 18c, we sold our honey for 20c, here, Thurber & Co. paying the transportation and taking all risks, thus showing that our honey brought at least 2c, and the transportation more than Novice was offered for his. On same page (317) C. R. Isham says, "Thurber paid Mr. Doolittle 20c, per lb. for the honey to which was awarded the $50,00 Gold Medal. They paid me 25c, for the 90 lbs. I exhibited in competition." To this we will say our crate of honey put up to compete for the medal was stolen off the cars in transportation, so was not on exhibition; but we had another crate there of 37¼lbs. for which Thurber & Co., were offered $1.00 per lb. crate and all, before we left N.Y. We charged Thurber & Co. no more for this crate than for any of the rest, as they bought our whole crop. We make this explanation that the readers of Gleanings may not get the impression that a crop of 9,000 lbs. of honey could be sold for as high a price as a crate or two selected out of 9,000 lbs. would bring, when selected to compete for a Gold Medal.
G. M. Doolittle, Borodino, N.Y.

The sample cases we sent Newman, King and Muth, were, as I have said before, to test their shipping qualities, and not especially to get prices. Rather than be to the expense of shipping them back, we told them to give us credit for whatever they could afford. At this same time, we had a standing offer for 2 tons or more, at 25c, and the calls we had from different parties from the city of Cleveland alone, would have taken all of friend Doolittle's 9.000 lbs at 25c. without trouble, had it been in 1 lb. thin light pine sections.

Now there is something to say on the other side; it is really more profitable, (or rather we get more money) to sell honey at 20c. in the Betsinger box (the one Doolittle uses) than to sell it for 25c in our sections. I have just taken a section box at random, from a lot purchased of D., and although we put in thin glass, it weighs 11 ounces. I believe the boxes do not average over 2 lbs. each, so you see we get 1 lb. and 5 oz. of honey for 40c. This would be over 30c. per lb. for the honey when ready for the table. Our sections weigh 1 oz. At 25c., the honey on the table, costs near 27c. therefore if people will pay the same for a 2 lb. glassed section, it is more profitable to let them have it. Friends Betsinger and Doolittle claim they will, and perhaps such is the case, in cities, but in our own town and Cleveland, the 1 lb. sections in our glass retailing case, would leave the other untouched. Perhaps the 1 lb. sections have not found their way yet into the cities. The following seems to look that way:

We have had a consignment of honey this year in cases, or rather 1 lb. frames and crates made according to your directions. This honey sold quickly, and we have had enquiries for more. We would show like a pattern crate filled with 1 lb. frames to bee men seeking desirable packages.
H. K. & F. B. Thurber & Co.
New York, Dec. 12th, 1877.

After the sample case was received, the following came to hand:

We are very much obliged to you for the crate, and feel sorry it was not on exhibition at the American Institute fair. There can be hardly a doubt but it would have been favorably received. The idea of doing away with so much unneccessary tare in the way of glass is a *great* advantage. Had all the honey we purchased this year been crated in your style of crates, it is our firm belief we would have paid for 50,000 lbs. less weight. Please excuse a suggestion; and that is, reduce the size so as to hold 24 frames. With this alteration it will no doubt be the best, i. e., the most acceptable crate on the market.
H. K. & F. B. Thurber & Co.
New York, Dec. 19th, '77.

We have the 24 box cases on hand, as well as the 48, and just such a one was sent to the Ohio State fair by one of our friends. I really do not know whether it took the premium or not, but we have had many letters of inquiry, in regard to it.

Some may ask why I did not send a case to compete for the gold medal. Well, the real truth was that I was afraid to. I would of course think that mine was best, and if I didn't get the medal, I would perhaps get jealous, and quarrel with my best friend; if I did get the medal, judging from what I remember of myself during past similar experiences, it would do me still more harm. That is rather a humiliating confession to make, is it not? Well, I rejoice that there is a very safe place for me in such matters, and for all who are unfortunately like me. It is to give *God* all the credit, for all that we may succeed in doing; then we are at peace with all the world, with our own selves, feel pleasantly toward everybody, and it matters very little whether we get all the credit we deserve or not, if our efforts have been the means of doing good and helping mankind.

If you are undecided in regard to the section boxes, just place a few of each kind in the market. The people will very quickly tell you which they prefer.

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HOW DOOLITTLE GOT 566 LBS. FROM ONE COLONY.

ALSO SOMETHING ABOUT RAISING LOTS OF BEES.

WE are requested to give particulars in regard to the way we managed the stock that gave us the 566 lbs. extracted honey, the past season. The stock was selected on account of being near the house, and was no better than ½ our stocks. They were built up on the plan we have so often given, of contracting the hive by means of a division board and then spreading the brood from time to time, as they would bear it. About June first, they were changed from one of our standard hives to a hive four feet long holding 32 Gallup frames, but were not given the whole number of frames until about June 20th. We supposed we were going to keep the queen on about 16 to 20 combs, but found we could not do it without a division board of some kind, so at the height of the season, about July 15th, we had brood in every one of the 32 frames, or to the amount of 1400 square inches, which the reader will see would give 70,000 bees in 21 days. This was the best, by far, we ever had a queen do. We extracted when the bees began to seal over the cells at the top of the combs. The honey was about in the proportion of 15 lbs. apple blossom to 185 lbs. white clover, 290 lbs. basswood and teasel and 76 lbs. buckwheat. At the end of the season there were no more bees than in many of the other hives. They were helped in no way, except by giving them empty combs enough to fill the hive.

Novice says on page 263, Vol. 5, "Before we put you clear at the head of the class we want you to bring the 152 colonies through to next May, *without losing a single colony.*" This we do not expect to do, for we never have wintered our bees without loss since the winter of 1870-1; and if we should succeed in doing so, it would be only to double them back in the spring to 100 colonies, as that is the highest number we ever wish to commence the season with, and all I believe one person is capable of taking care of to secure the best results. We find it more profitable to double up bees in the proper way, than to sell them at present prices; and 100 colonies is the height of my ambition to commence the season with. We would rather do less and do it well, than have 300 or 400 stocks and not half do the work they would require.

G. M. DOOLITTLE.

Borodino, N Y.

Well, I declare friend D., if you have not gone right back to the "Long idea" hive. If one works for extracted honey alone, there are some very pleasant features about the Long hive, especially if you have a colony of bees that will keep on raising bees as fast as we spread the frames. From the experience I have had, I am inclined to think all colonies cannot be profitably worked in that way; at least, after thousands of such hives have been made and used a few seasons, they have, almost without exception, been abandoned sooner or later. As the 582 lbs. obtained by friend Elwood from a single colony in 1874, was with a two story hive, I think we can conclude that the Long hive had little if anything to do with it, and that friend D. could have done nearly, if not quite, as well with a two story hive. These are important matters, for we do not want to waste our money as we have done, by building new fangled hives only to throw them aside in a year or two.

FRIEND JOINER AND HIS SWARMING TROUBLE.

AND HOW HE "TALKS" ABOUT IT.

I HAVE neglected, so long, my correspondence to GLEANINGS, that I am almost ashamed to come again. I have had a great many things to say to your readers, but before I was ready to say them, some one else had said them better than I could. I promised to give my experience in section boxes, and fdn. I made 15 swarms early in June, in Simplicity hives, one story, 7 frames empty and 2 frames of sections with starters, by shaking all the bees from the combs of a populous colony into the L. hive on old stand. Each new colony was then given a frame of brood; they soon filled the empty frames and the 2 frames of sections. I then put on upper stories with 6 frames of sections, and one frame of brood, and raised the two frames of sections from below and replaced them with empty ones. They at once began work above, and by July 4th, I began to take off nicely filled sections of clover honey, and then they began to swarm. They were all well shaded. I returned the swarms and moved the stands to the other side of the yard and they swarmed again; I clipped the queens' wings, destroyed all cells and still they swarmed; I destroyed the queens, and they swarmed and entered hives that had queens, and then swarmed and some of them "went West." When a swarm would come out from some colony that had a queen, as soon as my simpleton bees heard them, out they would come as many as five swarms at a time and "jine in." I was the laughing stock of the neighborhood; every *bee* that was old enough to fly would leave. I took all their honey and still they would swarm; they would in some mysterious manner coax virgin queens into their hives, and next day they would come out all ready to emigrate. After I had exhausted all my ingenuity, 4 or 5 swarms held a camp meeting one day on an apple tree and departed, taking the strikers with them I suppose, as I had no more trouble. All hands went to work, and during the short season that followed I got about 600 lbs. of section honey. Now, among all these, there was one colony that did *just* as I wanted them to, and there were two colonies that, after I *moved* them, did all right. What in "Sam Hill" possessed the others I don't to this day understand. I found out that tin separators are a necessity for keeping the combs straight, and for keeping the queen and pollen out of the two frames below. Pollen will still be put in below if you do not close the entrance in front of the frames of sections.

Another thing you want to be careful about, is to have the frames of the upper story hang scant ⅜ inch from the lower frames, or comb will be built there that will bother "amazin." Keep your tin separators bright and clean, or section honey will be attached. Now about side sections in American or other tall hives. The "Corporal," my neighbor, has American hives; he removed two frames next the door and put in a wide frame filled with sections. When they got nicely started he would stack them up on top with wooden separators, and he got some nice honey.

Well, I had some tall hives, the "National," and *I* tried it, and I'll be "switched" if the bees didn't come into the section frames and eat up the fdn. When I opened the door and looked in, they peeped at me through the slit in the separators as much as to say, "That's too thin old chap, pull down your vest and wipe off your chin." But "nary" a section did I get. Well, to sum it all up, I calculate that I got 600 lbs. section box honey in place of 1500 lbs. I might have extracted, and lost 5 or 6 swarms, by emigration. But you know, if a fellow never goes into the water until he learns to swim, it's a slow business. I am determined to learn how to raise section honey. Anybody can raise extracted honey, and any farmer that does not have what honey he needs for family use, does not live up to his privilege; but when you come to box honey as a crop, in any considerable amount, notwithstanding Doolittle, Harbison and Hetherington, and even Novice, why, it just "gits" me. The trouble is swarming fever.

I'll tell you what I am going to do next year, if they *will* swarm, why I'll let "em" and put "em" into one story Simplicities; and when they get done I'll double "em" up and pile on the sections. I've asked Doolittle, several times, how he keeps his bees from swarming, and he won't tell. I motion we expel him for contempt, and when he asks to join again, make it a condition that he tells "all he knows" about the swarming fever. Well! of all the long winded yarns! and I ain't *half* through. R. L. JOINER.

Wyoming, Wis., Dec. 18th, 1877.

We have heard reports of such swarming times, friend J., but they have never yet come into our own apiary. If you remember, friend Doolittle had just about such a time in '76, and if I am correct, he didn't know what to do, any more than you did. It strikes me that I should turn my whole apiary to queen rearing, or at least the restless stocks, and then hive every swarm, even if there were no more than a pint, and let them raise queens. Would not this course have satisfied them? I agree with you in regard to having the space a scant ⅜ between the upper and lower frames, but if you don't look out, they will put bits of wax in the way even then; the result will be that bees will be pinched, if the combs are very heavy. This is to me, perhaps, the most difficult point in a two story hive. In spite of all that Doolittle and his neighbor Betsinger have said in favor of comb honey, I believe they both say they would work their apiaries entirely for extracted, if they could be assured of 10c per lb. When questioned closely, Mr. B. said one great inducement would be that producing extracted honey was *so much less work*. Prof. Cook, also, strongly insists that extracted honey is going to be the great staple eventually. Let us have hives that will admit of working for either without any expensive changes.

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SIMPSON'S HONEY PLANT.

I AGAIN ask permission to use the colums of GLEANINGS to answer a host of inouiries about that honey plant *(S. Nodosa)*. The plant, as found here, nearly always grows among other weeds, or in brush or partially shaded woods. I think it will always be found more abundant in the vicinity of an old apiary than elsewhere. The cause is that it must be fertilized by the bee or insect in search of the sweets it yields. The root bears transplanting well. It commences blooming from the first to the tenth of July, or about the time that linden and clover close and continues until frost, yielding honey, be the weather wet, warm or cold, during bloom; but not being frequented at all times by bees. As soon as hearts-ease or buckwheat begins to yield, it is forsaken until they cease, when they go back to it again. I feel pretty well satisfied that one acre thoroughly set with it, would keep up breeding and some honey storing for 50 or 100 colonies during the trying months of July and Aug. I have tried mustard, catnip, melilot, and this season mignonette; the trouble with them is that when honey ceases elsewhere, caused by atmospheric changes, it ceases with them; but not so with the honey plant. It may not yield so much but it will still present its cup brimming full of nectar every morning.

The honey is of excellent quality: as clear as clover, making beautiful comb, but lacking any distinct aroma, as linden or buckwheat. It is excellent for cooking purposes, leaving none of the honey taste when used for sweetening tea or coffee, and it bakes equal to sugar.

I do not know how far North or South it would flourish but I have sent seeds to every state in the Union, and roots as far South as New Orleans, and North as Wisconsin. We shall hear in due time.

The above are as correct answers as I know how, at the present time, to give to questions that have been asked me through the mail. This may be old to some of you, but there seems to be a goodly number of the 2398 subscribers (it should be double that) to whom it will be new. JAS. A. SIMPSON.

HONEY REPORT FOR, 1877.

I had 27 stands May 1st, about half pure Italian, the balance except 4, hybrids. I closed the season with 78 stands in good condition. My apiary is now ¾ pure [illegible], the result of introducing young queens of my own rearing. Extracted honey, 4,260 lbs. Box honey, 21 lbs. All sold in home market and more wanted. Average price. 12c per lb.

JAS. A. SIMPSON, Alexis, Ills., Dec. 15th, '77.

The plants were found growing quite plentifully in our neighborhood, after we once started out to look for them. It seems that they are easily broken down by cattle or stock, for although we found none in the open fields, they were found quite plentifully in old tree tops, piles of brush, fence corners, and most of all, in the edge of hedge fences. We secured quite a lot of the seed, by simply breaking off the stalks, and laying them in a basket having a paper laid inside. By the time we reached home, quite a quantity of clean seed was found on the paper. The quantity of honey found in a single blossom, is certainly astonishing, and as it blooms profusely, I cannot see why it will not prove of great value. We have received a sample of the honey from friend S., and should unhesitatingly pronounce it clover, both from looks and taste, unless it be that it lacks the mild flavor that some specimens of fine well ripened clover possess.

The A B C of Bee Culture.

CATNIP. (*Nepata Cataria*). This is a near relative of GILL-OVER-THE-GROUND, which see. Quinby has said that if he were to grow any plant exclusively for the honey it produced, that plant would be Catnip, and very likely he was not far from right. But as we have never yet had any definite report from a sufficient field of it to test it alone, either in quality or quantity of the honey, we remain almost as much in the dark in regard to it as we were at the time he made the statement, several years ago. Several have cultivated it in small patches, and have reported that in a state of cultivation, it apparently yielded more honey than in its wild state, for bees are found on it almost constantly, for several months in the year; yet no one, I believe, is prepared to say positively that it would pay to cultivate it for this purpose. Seeds have been advertised and sold through our Journals for several years, but, as many complaints have been made that they did not grow, and as we have entirely failed in getting several different samples to germinate, we are a little doubtful about the feasibility of sending out seed. The only person who has raised cultivated plants from the seed, that we remember of, is M. Nevins, Cheviot, O., and he advises sowing it in Jan., Feb., and March. It is very likely that this, like many of the seeds of forest trees, requires the agency of the frost, to make it germinate. Such would seem to be the case from the reports of several, to the effect that they had caused it to grow in fence corners, brush heaps, and many waste places, by simply sprinkling the seed on the ground as they passed along. Mr. Nevins, and J. Wolfenden, of Adams, Wis., both speak of the honey as being equal in quality to either White clover or Basswood.

Since the above was written, we have had several reports from those who have raised the plants in great profusion; and as one of the parties said the seed came up very thickly on the plat of ground where he winnowed the seed, we are inclined to think the trouble has been in saving the seed, or in sowing it. It seems that the seed should be gathered about as soon as it is fully ripe, and if the weather is favorable, it may be sowed immediately. Samples of seed gathered as above, have germinated without any trouble. The plant does not usually blossom until the second year, but if sowed very early, on fine soil, it may make quite a bloom the first season.

CIDER AND CIDER MILLS. Not only are many of our bees drowned in the cider, in the vicinity of cider mills, but the cider if gathered late in the season, is very apt to prove very unwholesome as a diet for our little friends. Probably much of the dysentery that causes such havoc is the result of this unsealed cider stored in the cells when winter comes on. If the colony is very strong, and well supplied with winter stores, the cider may do but little harm, but where they are weak and obliged to use the cider largely, they sometimes die even in the fall. We at one time fed a colony about a gallon of sweet cider, and they were dead before Christmas. At another time a barrel of sweet cider was found to be leaking, but as the bees took it up greedily as fast as it ran out, their owner kindly allowed them to work away. They all died quite promptly, after the experiment.

The bees of a large apiary, will take sweet cider from the mill, nearly as fast as it can be made, and we at one time had quite a serious time with the owner of such a mill, because the Italians insisted on "going shares," whenever he made sweet cider. After paying quite a little sum in the way of damages, and losing our bees every season there was a large apple crop, besides buying sugar in the vain attempt to call them away by counter inducements, we, at the suggestion of one of the other sex, hung white cloth curtains over all the openings to the mill. Some strips of pine, $2.50 worth of sheeting 2½ yards wide, and a couple of hours time, fixed the mill so that scarcely a bee was to be seen inside. In a very short time they gave up flying around the mill, and apparently forgot all about it.

D.

DANDELION. (*Taraxacum*). This plant, I am inclined to think, is of more importance, than is generally supposed, for it comes into bloom just after fruit blossoms, and as it yields both pollen and honey, it keeps up brood rearing, when it is of the utmost importance it should be kept going. I do not know that it would pay to raise a field of Dandelions expressly for the bees, but as they grow to a great size and luxuriance when allowed to stand and blossom in the garden, I feel pretty sure that a cultivated plat of them would furnish a great amount of honey. What a pretty sight it would be on our honey farm. They do not ordinarily blossom until the second season, but perhaps, like catnip and clover, they would do so, if sowed early and cultivated. As Dandelions seem to be much on the increase in the fields and about the roadsides in our vicinity, I think we can safely conclude that the more bees there are kept, the more such plants we shall have, for they, by fertilizing each blossom, produce an unusual amount of good sound seed. I do not think of any other purpose for which the Dandelions can be used, except as greens in the spring; if we allowed stock to forage on our yellow flower garden, I am afraid it would mar its beauty, if not its usefulness for honey.

I really cannot say much in praise of the Dandelion honey, for we extracted some that we called Dandelion on account of the taste, and we could not use it at all. It was so dark colored and strong, that we with difficulty gave it away. The honey *may* have been from the shell bark hickory, however, as that comes in bloom at about the same time.

DISEASES OF BEES. I am very glad indeed, to be able to say that bees are less liable to be affected with disease, than perhaps any other class of animated creation. It is perhaps because the individual members of a colony, are so constantly giving way to other younger members, as they are hatched out, and come on the stage of action. Nothing but a really contagious disease, could do very much harm, where vigorous and youthful members are being added to the family circle almost daily, and for a great part of the year, by hundreds or thousands. Therefore, if your bees lack thrift, all you have to do is to start brood rearing briskly, and if the queen is in any

BEES AND HONEY.

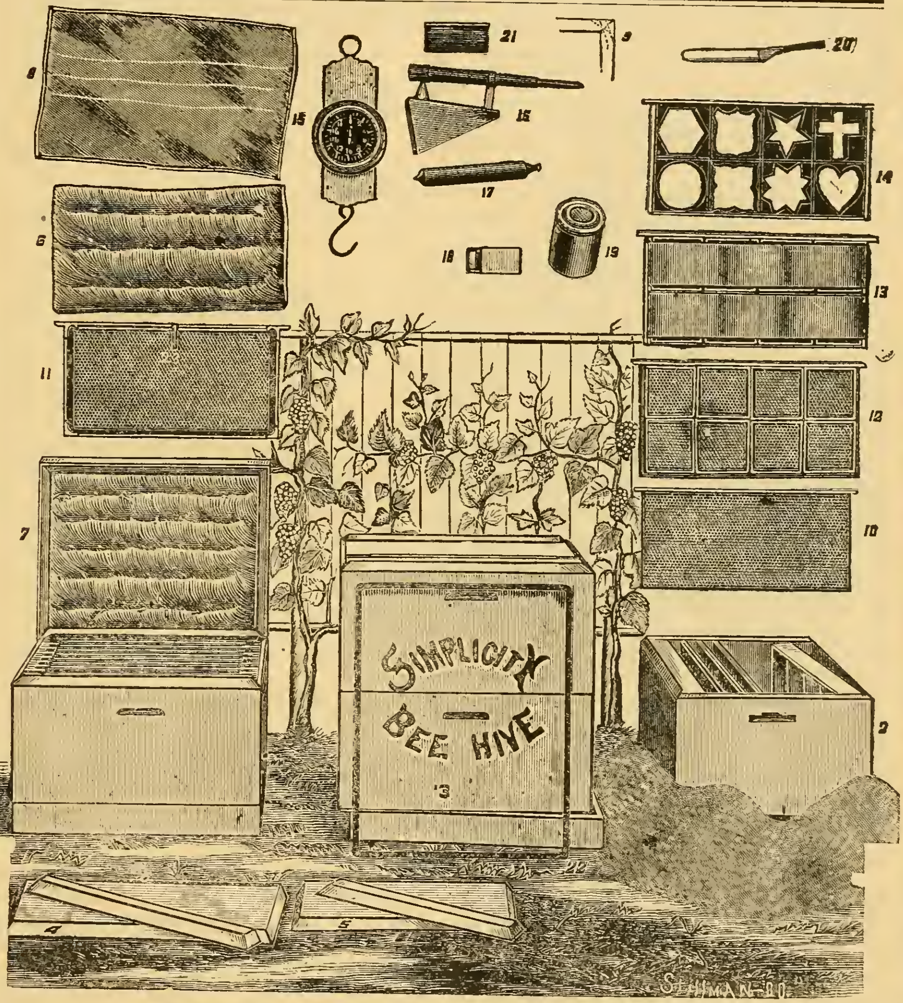
Our 12th Edition

Illustrated Circular & Price List,

OF

Implements for Bee Culture with Directions for their Use.

A. I. ROOT, MEDINA, O., JANUARY 1st, 1878.



Implements for the Apiary.

No. 1, shows a Simplicity Hive, single story, with the sheet of Duck removed, so as to show the 10 frames in place. The Chaff Cushion is shown in the cover, where it is fastened by 8 or 10 tacks around the edge. You will observe that when the Cushion is thus fastened in the cover, we are obliged to have the sheet of Duck shown at No. 8, fitted closely over the frames that the bees may not get to the Cushion, or it would be stuck so tightly to the frames that we could never get the hive open. For wintering, a much thicker cushion is used, unquilted, and placed in an upper story. This Hive is shown with the entrance closed, by pushing it back squarely on the bottom board, while Nos. 2 and 3 are pushed forward so as to give a ⅜ inch passage for the bees. No.

2 shows the way in which we contract the entrance with sawdust, only it needs stamping down a little more. Cover and bottom board are always used *same side* up. Bottom board should rest on four half bricks. No 3 is a 2-story hive, being simply two bodies one over the other, with the cover removed, the covers and bottom boards being one and the same thing. In the foreground are seen the four simple pieces of which the hive is composed. The two large ones, are of course the side and end of a hive, and the strips lying on them are the pieces that are nailed under the cover, as will be readily understood by looking at the diagram on page 7. The iron frame leaning against No. 3, is the gauge to be slipped over the hives while they are being nailed. It is, inside, 20¼ by 16 inches, and is slipped over the hive both top and bottom, like a hoop. This holds them square and true, and shows when the stuff is just right. If they just fill the hoops, you can be sure that any hive you have will just fit any other, and that it will be exactly right for every frame in the apiary, it they are also made on a gauge, as they certainly should be, or at least the stuff should be cut to fit a gauge.

No 12 is a frame containing 8 section boxes filled with with fdn., and No. 13 is the same with the tin separators added. At No. 2 we see one of these frames of sections at each outside of the hive; this is the way in which we arrange a single story for comb honey, leaving the brood in the middle. At No. 3 the whole upper story is supposed to be filled with these frames of sections. No. 11 is a metal-cornered frame filled with fdn., and a transferring clasp, No. 23, is shown pushed down on the top bar, as they are used.

At No. 14 we have a frame of fancy sections. The fdn. is put in these by pushing them apart, and catching it between the two ⅜ boards of which they are made. No. 16 is the Quinby smoker, and No. 17 is he Doolittle smoker. No. 19 is a quart feeder. We should have added, in the proper place, that the artist has put quite a number of wires on the grape vine trellis, while but 3 are really needed. The grape vines are also heavy with foliage toward the top of the posts, during the hottest weather.

OUR PRICE LIST FOR 1878.

Bee keepers who are ready and willing to work for their honey, we believe are all busy, and are all so far as we know, realizing as fair a reward for the time and capital invested, as in other kinds of business. A few of the most keen and enterprising, are, as in all kinds of business, far outstripping the rest, and it rests with you alone, my friend, to determine what place in the ranks you will occupy. Just one piece of advice: However attractive the wares may seem that we are about to describe, we would say, don't get in debt for them; if you haven't the money to purchase, don't buy until you get it. Be humble and satisfied with little, and let your apiary grow of itself, and be self-sustaining. I say this because I *really* do not wish you to be disappointed. If you study the subject and become thoroughly familiar with the bees by actual work among them, both capital and bees will come as fast as you can handle either. I want to see you all prosper, and to do so, you must be cheerful, courageous and independent; above all, don't get crazy and extravagant if you should happen to get $25 or $50, as the proceeds of one colony in a season; prosperity is sometimes harder to bear than adversity.

IMPLEMENTS FOR THE APIARY.

We have carefully thrown out or remodeled everything in our list found in any way defective, and we offer nothing that we do not approve of and use in our own apiary.

We can ship promptly, by Freight, Express or Mail, (none mailable except those designated,) goods mentioned in the list in every number of GLEANINGS. Hives, Extractors, &c., can be sent much cheaper by Freight, but in this case they should be ordered three or four weeks before needed, if the distance is considerable. During the months of April, May and June, orders may sometimes be delayed several days, but our customers may rely upon receiving notice at once on receipt of all remittances.

At the prices given in this list, cash *must accompany every order;* as the sending of goods, C. O. D., entails an additional expense, and goods sometimes fail to be taken, we really dislike to send them thus, but if you are content to pay from 25 cents to $1 to the Express company to bring us the money, (which could be sent by P. O. Order for 10 cents,) we will send them C. O. D. when desired. Orders for frames or hives of dimensions differing from those named, will also be liable to some additional delay, especially during the "honey months."

PREPAYING EXPRESS AND FREIGHT CHARGES.

Express charges are so variable that it seems difficult to establish a uniform and satisfactory rate; yet if you choose to leave the matter to us, we can prepay charges at about the rates given in the following table. If you can make a better arrangement with your agent do so by all means; if not, send the money to us and we will prepay express when goods are shipped. If your express office is not on a main line, from 25 to 50 cents more must be added. This is rather indefinite, we are aware, but it is the best we can do. If goods are not wanted at once, they can be sent by freight at one-half, or still less rates; but it is very unwise to wait until they are wanted and then order by freight. As an illustration, we have taken a cover, a whole hive and an extractor, they weigh respectively, about 5, 15 and 25 pounds.

RATE AT WHICH WE CAN PREPAY EXPRESS CHARGES.

	Cover.	*Hive.*	*Extractor.*
New York	$ .60	$ .75	$1 00
Chicago	.55	.65	.90
San Francisco	3.00	4.00	5.75
New Orleans	1.60	2.00	2.75
Galveston	1.90	2.35	3.20

HOW TO SEND MONEY.

If you do not wish to take any risk of loss, send P. O. Order, registered letter, or get a N. Y. Draft. But as all these ways are expensive, especially for small amounts, I will make a suggestion. Probably not more than one letter in a thousand, is lost in the mail but to be on the safe side, we will assume that one in a hundred will be lost. The cheapest way is to get a Money Order, but even at the low price of 10 *cents, we pay $10. to have the one hundred letters safe, besides the trouble of getting the Order. Had you put $10. in each of the hundred letters, and lost one of them you would have been no more out of pocket. This would show that it only pays to register amounts exceeding $10. To make it a little safer, call it $5., and we have for years sent all sums of less than $5., in the letters, and we have saved in fees, far more than the amount lost, besides saving our friends who recived it, the trouble of getting it cashed. This plan only applies to persons of known integrity, for when the money is sent, they may if disposed, say they never received it. If you do not know* ME, *you had better not send me any loose money, for I may be only writing this to get the advantage. Do you ask why I do not stand the loss myself if it is only one letter in one hundred? I would cheerfully do this, were I not in danger of doing harm by making such a proposal in a public circular, for it would be too much like leaving the door to one's store open all night. Besides, I should have to charge a little more for goods, if I stood* ALL *losses. I would advise all to do business with as much economy as possible, but when losses come, I think it best that we each bear our share of them, cheerfully.*

For fractional parts of a dollar, postage stamps are always acceptadle, and we can use them of any denomination.

We always consider it an especial favor to have customers inform us by postal card whether goods are satisfactory; whether our mode of packing is efficient; time taken in transit; whether Express or Freight charges were reasonable, etc., etc.

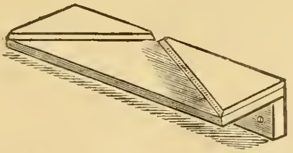
Respectfully, A. I. ROOT, Medina, O.

IMPLEMENTS, AND SUPPLIES FOR THE APIARY.

To avoid useless repetition, this price list contains only further explanations of the articles given alphabetically, in every No. GLEANINGS; *therefore if you wish a list of all the articles we keep for sale, you are to look there for it.*

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

ALIGHTING BOARDS.



ALIGHTING BOARD, DETACHABLE.

These are intended especially for hives with a loose bottom, but can be used on almost any hive. They are fastened to the bottom board with a couple of screws. The entrance is closed or enlarged at pleasure, by moving the hive backward or forward. They look rather pretty on the Simplicity Hive, but I do not think them at all essential. See HIVES. Price 10 cts., by mail, 25 cents.

BARRELS FOR HONEY,

Price, $2,50; the same waxed and painted, $3,50. For directions for waxing and painting, and all about barrels and barreling honey, see A B C, Part First.

BASSWOOD TREES.

Young Basswood or Linden trees, securely packed with some of their native soil adhering to the roots of each.

One foot and under, per one hundred...........	$2 00
" " " " " " by mail....	3 00
One foot to five feet " "	5 00
Five feet to ten feet " "	10 00

These will be taken directly from the forest as wanted, and if planted any time after the leaves have fallen, until the ground freezes, not one in one hundred should fail to grow. They can also be sent during the months of April and May; and spring planting is, perhaps preferable. For a description of the basswood with engraving, see A B C, Part First.

BEE-KEEPER'S MEDLEY.

This is a fine large photograph, size 11x14, containing excellent, large photographs of both Langstroth and Quinby, besides good sized pictures of almost all the prominent bee-keepers and writers for the Bee Journals. The name of each is plainly printed on it, and as it contains over 150 pictures, it makes a very pleasant study, especially after having followed these friends in their writings as we have many of them, for years. Think of having a good photo of Hetherington, Grimm, Doolittle, Bolin, Prof. Cook, Dadant, Dean, Davis, Gallup, Katie Grimm, Mrs. Harrison, Dr. Hamlin, Muth, Nellis, Nesbit, Wagner, Prof. Kirtland, Parsons, Carey, and enough more to nearly fill this page, all sent safely for only $1,00.

BEES.

Bees, full colony amply provided for winter, in our new two story, chaff hive (described Nov. and Dec. No's.. '76), tested queen from imported mother, safe arrival guaranteed..(Lawn hive $1 more.)..	$15 00
The same in a 1 story Simplicity hive........	13 00
The same in old style L. hive with portico, etc.	12 00
The same with hybrid queen..................	10 00
Not provisioned for winter (hybrids in old hive)	7 00
Two frame nucleus with tested queen	5 50
" " The same with dollar queen....	4 00

For an imported queen in any of the above, add $5,00.

We think we can prepare bees for shipping safely any month in the year; when we fail in so doing, we will give due notice.

COMB FOUNDATION.

PURE BEESWAX.

Packed in neat wooden boxes—paper between every two sheets.

	per lb.	per pckg.
1 lb. 6x6, by mail........................	80c	80
3 " 12x18 or 8x16½, by mail.........	80c	$2 40
3 " " " by freight or exp.	58c	1 75
5 " " " " " " ..	55c	2 75
10 " " " " " " ..	55c	5 50
25 " " " " " " ..	53c	13 25
50 " " " " " " ..	52c	26 00
100 " " " " " " ..	50c	50 00
500 " " " " " " ..	48c	240 00
1000 " " " " " " ..	45c	450 00

White wax, 25c per lb. extra, if wanted, but we consider the yellow in every respect preferable; even for comb honey.

The fdn. is kept in stock, in sheets 12x18 inches, and 8x16½ inches [exact size needed for L. brood frames] packed in boxes of 3, 5, 10, 25, 50 and 100 lbs. each, and shipped only in these boxes at the above prices.

There are 5 cells to the inch, and one pound of wax makes from 4 to 9 square feet of surface. The thinnest will be used by the bees, but is not made into comb as quickly as the heavier, which has a greater depth of cell.

If 60 lbs. are wanted, send money for a 10 lb. box and a 50 lb. box, &c. The difference in price is only enough to cover the difference in cost of boxing, packing, &c.; five 10 lb. boxes, and packing, handling and nailing up five boxes, cost much more than one 50 lb. box, and packing, handling and nailing up one box.

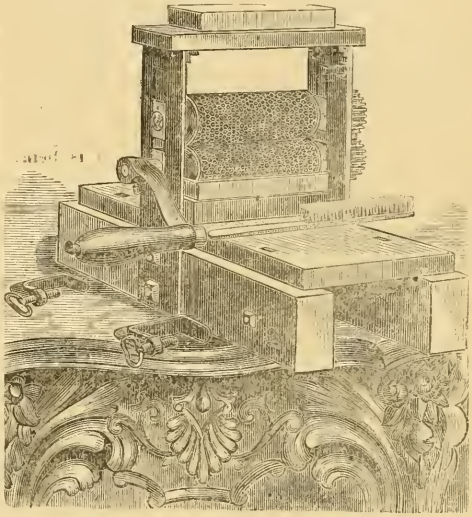
As these packages are all put up and kept in stock, there can be *no variation*, unless at an additional price.

Now, my friends, if you want all sorts of quantities, or want it cut all sorts of sizes, I will accommodate you with all the pleasure in the world, for TEN CTS. PER LB. EXTRA.

Wax will be worked up to order, and cut into sheets of any size desired, for 25c per lb. in quantities of 100 lbs. or more.

We will pay 30c per lb. cash for bright yellow wax, or sell it for 35c.

At above prices we can pay no express or freight charges either way.



FOUNDATION MACHINE WITH 5 INCH ROLLS.

COMB FOUNDATION MACHINES.

Machines for making sheets 1 foot wide -	$100 00
Expressly for L. frame, 9 inches wide -	50 00
For making 5 inches wide for section boxes-	35 00
Double Boiler for above machines, -	$3.00, 3.50 and 4.00
Dipping plates per pair. - -	$1.00, 1.50 and 2.00

The above prices are for cells 4½ or 5 to the inch. If drone size is wanted, add $10, $5 and $3 respectively to above prices. The machines are all ready for use, and full instructions will be sent to each purchaser.

We have sold $35.00 machines for making comb foundation to

Rev. J. Van Eaton, York, N. Y.; Lewis Walker, Ventura, Cal.; G. M. Dale, Border Plains, Iowa; G. W. Gates, Bartlett, Tenn.; A. Salisbury, Camargo Ills.; C. F. Lane, Koshkonong, Wis.; Wm. S. Hersperger, Jefferson, Md.; Wm. Riatt, Liff, by Dundee, Scotland; W. S. Boyd, Bethany, O.; W. R. Bishop, Sherwood, Wis.; Dr. J. B. Hawkes, Arlington Heights, Ills.; A. W. Foreman, M. D., White Hall, Ills.; Mrs. M. D. Minor, Port Jackson, N. Y.; C. M. Joslin, M. D., St. Charles, Mich.; Geo. B. Wallace, San Bernardino, Cal., C. L. Johnston, Danville, Pa.; J. F. Flory, Modesto, Cal.; W. H. Stewart, Orion, Wis.; C. F. Dielnielt, Milwaukee, Wis.; Scudder and Palmer, New Boston, Ills.; A. Potter, Eureka, Wis.; R. Quinn, Shellsburg, Iowa.; J. B. Keeler, Carlinville, Ills.

A $38.00 (5 inch drone comb) machine to J. H. Nellis, Canajoharie, N. Y.

Nine inch $50.00 machines, to C. R. Carlin, Bayou Goula, La.; Jno. Hunter, 5 Eaton Rise, Ealing, England; J. B. Stevenson, San Bernardino, Cal.; J. E. Crane, Bridport, Vt.

Twelve inch $100.00 machines, to C.O. Perrine, Chicago, Ills.; D. A. Jones, Beeton, Ont., Canada; J. Madory, Los Angeles, Cal.; J. H. Nellis, Canajoharie, N. Y.

HOW TO FASTEN SHEETS OF FDN. IN THE BROOD FRAMES

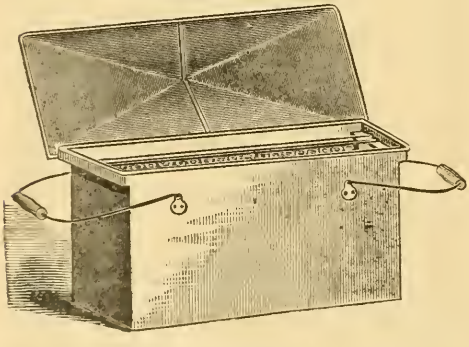
The melted wax plan.

Set a common small lamp in a tall box with one open side, having coarse wire cloth nailed over the top. Place on the wire cloth a cup containing wax. Keep the wax just melted, by turning the lamp wick up or down. Now, with a pencil brush you can put the melted wax neatly just where you want it. Fit a board so that it will slip into your frame just half way, and lay your sheet of fdn. on this, with its upper edge close against the top bar; brush the wax along the joint, slip out the board and hang the frame in a hive. After a little practice you will do them quite rapidly, and think it is just fun. It is said that the fdn., to prevent sagging, should go in the frame in such a way that the walls of the cells run up and down, instead of diagonally. Our sheets are all made for the L. frames in that way.

The plan we prefer.

If wax is rubbed *hard* against a piece of dry wood, at ordinary temperatures, it will adhere almost as well as if put on in a melted state. Therefore, all we have to do to fasten it in the frames, is to lay it in place, and press the edge against the comb guide with the fingers, until it sticks moderately. Now take a knife or screwdriver, and rub it down hard. To prevent the wax from sticking to the tool, dip it in either starch or honey; we use the latter because it is handier. One corner of the tool should go clear down to the wood, at the last stroke to make a "sure thing" of it. The fdn. should reach within ¼ inch of the end bars, and within ¾, as a general rule, of the bottom bar. This space is needed to allow the sheets to stretch as it is being worked out, which it always does more or less. Some lots of wax will stretch scarcely perceptibly, while others will to the extent we have mentioned; and as it is desirable to have the sheet hang clear of the bottom bar when the cells are drawn out full length, we think best to give the amount of space below we have mentioned. The reason is, that the combs will bulge if there is any stretching after they have touched the bottom bar. To put the sheets in rapidly, you will need a board cut so as to just fit inside the frame, and reach up as far as the comb guide. Lay the sheet on this, close up to the top bar, and stroke it down to the comb guide, as we have directed. If your frames are made without a comb guide, you can fasten the sheet to the top bar in the same way, and then give it a quarter turn, so that it will hang straight down. As fast as the frames are filled, they should be hung in a hive, to be secure from injury. If you do not make the above plan work to suit you, you can fasten the sheets by tacking a strip of wood about ⅛ by ⅜ into the top bar, while the upper edge of the sheet is between them; this strip should be put on in such a way that the fdn. hangs straight down under the center of the top bar. For putting fdn. into the section frames or into boxes, make a saw cut nearly through the stuff of which the top is made, where you wish the sheet to hang. Before this piece is fastened in place, bend the wood backward in such a way as to open the saw cut, slip in the edge of the sheet, close up the cut, and it is secure.

COMB BASKET,



Holds five frames, secure from dust or robbers, and catches all the drip; price $2,50.

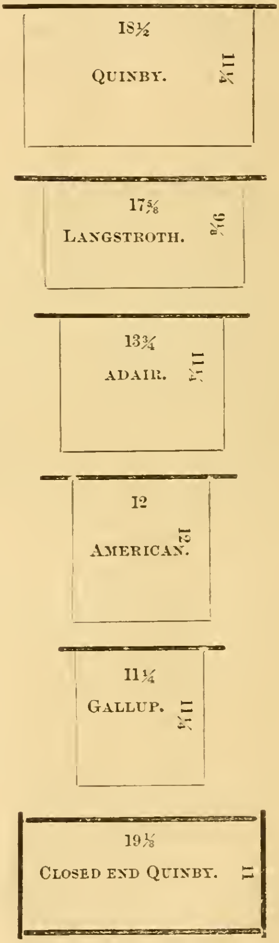
EXTRACTORS.

One important point is that all machines, to work to the best advantage, should be so made that the frame may hang in them just as it hangs in the hive, if we except the L. and Q. frames, and all having a length under the top bar greater than 14 inches. It may be impossible for us to give all the reasons for this now, but we hope you will take our word for it when we say there are very good reasons for standing a frame on end in the Extractor when the length is much greater than the depth.

We have before explained that we have our castings made to fit two different sized cans, viz., 17 and 20 inches, and we will now further state that we make the cans also of two different heights. To work nicely, the frame needs about the same amount of room to hang in the Extractor, that it has in the hive; to do this there seems to be no other way than to make every Extractor to fit the hive it is intended for. Of course you can use them otherwise, but we are well satisfied that the cumbrous machines now in use, are many of them destined to be soon laid aside for the more modern kind.

DIAGRAM OF PRINCIPAL FRAMES IN USE.

Figures given are outside dimensions in inches. Suspended frames have ¾ inch supporting arms, or an equal prolongation of top bar.



The following table is for the convenience of those ordering machines, and is intended to enable any one to decide for himself exactly what he can use to the best advantage.

PRICE LIST OF EXTRACTORS.

[The figures in parentheses, just before the prices, give the exact *inside* width of the revolving frame of the Extractor, *in inches*.]

A honey knife is included with each machine; the price will be $1.00 less if no knife is wanted.

No. 1.—For the Gallup frame, or any frame 11½ inches wide and not more than 12½ deep..	(12)	$8 50
No. 2.—For the American frame, or any one 12 inches wide and not more than 12½ deep.	(12½)	8 75
No. 3.—For any frame 12½ inches wide and not more than 12½ deep........................	(13)	9 00
No. 4. For the Adair frame or any frame. 13¾ wide and not more than 12½ deep.........	(14¼)	9 00

The above are all in shallow cans, 17½ inches high, and are very convenient for placing at such a height as to allow of running the honey directly into the barrel or any other receptacle, and still not too high for any one to work conveniently. The following numbers can also be used in the same way, unless the operator is short in stature; in that case, a shallow box may be inverted to stand on, but is somewhat inconvenient.

No. 5. This is made expressly for the Langstroth frame, which is to be used standing on end: it will take any frame whose top bar does not exceed 20 inches, and depth 9½ inches..	(10)	$9 00
No. 6. The same except that it will take a frame of 10½ inches in depth......................	(11)	9. 50
No. 7. This is made expressly for the Quinby *suspended* frame, and will take also the other kind when the end bars have a depth not greater than 11½ inches....................	(12)	10 00
No. 8. This is for all Quinby frames. and all American frames having a depth greater than 12½ inches. and can be used for all the frames in our diagram, but is much more inconvenient than the smaller ones where they can be used..	(12½)	10 00
No. 9. This machine is like No. 8, except that it takes a frame ½ inch wider. and is suitable for American frames that are 12½ wide and more than 12½ inches deep........................	(13)	10 00
No. 10. This is the largest machine that we keep in stock, and will take a frame as wide as the Adair, and as long as the Quinby..	(14½)	10 00

For frames having a top bar with an extreme length of more than 20 inches, we shall have to make an extra charge of $1.00, and we shall have to make the same extra charge for frames that exceed 14 inches the narrowest way. There are few frames of such extreme large size in use, yet we sold perhaps a dozen such last season. Also, we find a few who insist on an extractor that will hold 4 frames at once; unless the frames are very small, we cannot think such will be liked as well, yet we will furnish them when desired. at an expense of $1.50 extra. If you look into the matter, you will see that a very much larger and heavier revolving frame will be needed. and every ounce in weight added to this, hinders rapid work.

Any of the above will be made with the wire cloth in a slanting position, for $1.00 extra, but we do not consider it of any especial advantage.

All of the last six—tall cans—have a support at the bottom for the frames to rest upon. and also to hold broken pieces of comb. should it be desired. The four first have nothing of this kind. for it is not needed, and would in reality only make them heavier, and be in the way; we advise purchasers always to take the smaller machines when they will take their frames. For instance. we would much prefer the No. 4. to the No. 10. even if offered at the same price. provided we had nothing but the Adair frame in our apiary.

Although our machines are now made much lighter and stronger, the gearing very much improved in looks as well as in strength. an improvement added whereby once oiling will last for years, a cover and strainer added, and the prices reduced. yet we will make the proposal that we will, to anyone, who has purchased one machine, give 10 per cent off on all he may sell after that; and this is all we can do in the way of furnishing them at wholesale. To dealers who advertise our Extractors. we will give 25 per cent off. This offer refers only to Extractors and honey knives.

It may be there are valuable features found in the high priced Extractors, not found in our own, but if such is the case, we are unable to appreciate them. We have added every improvement suggested that we thought would prove valuable, all things considered. and yet we find no great difficulty in furnishing them all crated and ready to ship. for the price named. Any one who has carefully studied the matter will see that to make a machine capable of receiving four combs instead of two, will require an increase in size and weight, without very materially aiding in rapidity of work, among the masses. Reversing the combs inside the can, making the inside frame three-cornered, running the machine by gearing or belts placed under the bottom. etc., etc.. have all had their advocates. but we think have generally been, after a time, discarded like the revolving cans. Our friends can rest assured, that we shall spare no pains in promptly adopting any real improvement that may come up. Please *do* tell the dimensions of the frame or frames you use, in ordering.

Any kind of a machine that revolves the honey after it is thrown out of the comb, or that revolves tin cans with the combs, is a most serious blunder, as you will see by trying both kinds.

INSTRUCTIONS FOR USING AN EXTRACTOR.

Many of our new friends have asked for directions for using these machines, but really they are so simple, that it seems little advice need be required. They are all ready for use when received, and most that is required is to screw them fast to some box or bench just high enough to allow the gate to run the honey into the bung-hole of a barrel. Do not undertake to work unless the bees are gathering honey, or you will be very likely to have trouble. The best time is when they are busy in the fields, and if the yield is good, you will hardly need any smoke. Carefully remove a frame from the hive, and then with a series of sudden jerks shake the bees in front of the hive or on top of the frames, as you may find most convenient. When you have shaken off as many as you can. take a bunch of asparagus tops, and gently brush off every bee in front of the hive. Now with the honey knife carefully cut the cappings from all capped cells: to do this quickly you will slide the knife under the caps in such a way as to have them come off in one entire sheet. In regard to straining the honey, we know of no way that answers so well, all things considered, as to hang the little bag sent with the machine. in the bung of the barrel; this keeps it all close and tight from flies and dust, and when you stop work for a little while. it is all safe, without the necessity of covering anything up. Two such bags are really needed, so that one can be kept clean and ready to take the place of the other when it becomes filled with impurities. As the sediment always settles to the bottom of the bag. the sides work well as a strainer for a long time. Cloth strains honey more perfectly than the finest wire cloth can. When the comb is uncapped it is to be placed in the Extractor; although you can extract one comb at a time if you choose, it is much better to have two, as they then balance each other, and the friction is less on the bearings. though our machines will stand the strain of the heaviest combs. one at a time. if need be. Turn just fast enough (and no faster) to throw out the honey, and there will be no danger of throwing out the brood; you will soon learn this by practice. Combs so full of brood that there is but little room for honey had better be left in the hive; there is little to be gained by working very close, and should the honey season suddenly close, there is danger of the bees starving, as we have known them to do, even in July.

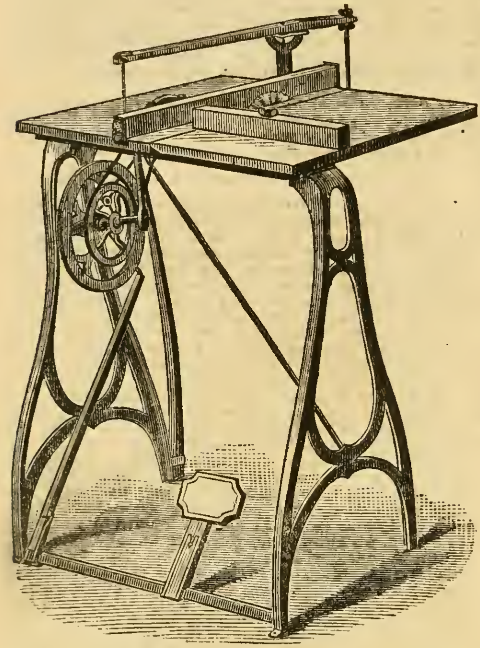
On this account I would extract from the frames in the upper story only, after the bees get once well into them.

If your hives are kept close to the ground, and no weeds allowed to grow around the entrances, there is very little danger of losing queens while extracting, yet it is a very good plan to keep them carefully in mind. and if you should not see them, we think it a little safer to shake the combs that contain much brood, so that the bees fall directly into the hive. Losing queens while extracting is rather expensive business.

After the honey is taken from one side of the comb it is of course, to be turned, and the honey taken from the other side. When the combs are very heavy and the honey very thick, it may be best to throw it out only partially the first time, and then reverse. to avoid crushing the comb into the wire cloth by the great centrifugal force resulting from such a weight moving at a rapid speed.

FOOT-POWER BUZZ-SAWS.

These machines are very handy in the apiary indeed. and as we warrant them to cut common inch pine boards at the rate of 8 feet per minute. line measure. and other thicknesses in proportion, they will answer to make frames, hives, section boxes. and almost every thing wanted about the apiary. The table can be raised and lowered for cutting different depths. for rabbeting, grooving, joining and other work. Price with two 6 inch saws, all needed gauges, etc., $35.00. The buzz saws, will reach through 2⅛ inches.



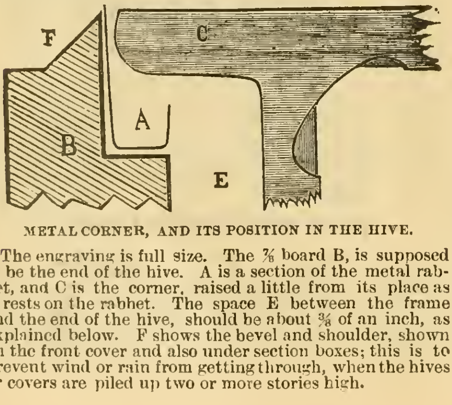
FOOT-POWER BUZZ SAW AND SCROLL SAW COMBINED.

These answer very well, for making hives for your own use, but if you think of making them for sale, you will need power of some kind. If the machine is all in excellent trim, *saws sharp*, and every thing nicely oiled, the labor is not very fatiguing, for sawing inch lumber, but if you let the saw get just a little dull, or your lumber is hard, or if you attempt to cut very much 2 inch stuff, you may wish pretty "severely," you had a little engine. Although we have steam power, we find the foot power saw so handy for odd jobs, that we could hardly get along without it. We furnish with them, at the price, two books on saw filing and the care of saws.

FRAMES FOR BEE HIVES.

CORNERS, METAL, FOR FRAME MAKING.

Perhaps the readiest way of understanding all about these, will be to order a sample frame, which we send by mail with a bit of rabbet and sample transferring clasp, for 15c. For the convenience of those who do not get the idea at once, we submit the following diagram: Also see Engraving on front cover.



METAL CORNER, AND ITS POSITION IN THE HIVE.

The engraving is full size. The ⅞ board B, is supposed to be the end of the hive. A is a section of the metal rabbet, and C is the corner, raised a little from its place as it rests on the rabbet. The space E between the frame and the end of the hive, should be about ⅜ of an inch, as explained below. F shows the bevel and shoulder, shown on the front cover and also under section boxes; this is to prevent wind or rain from getting through, when the hives or covers are piled up two or more stories high.

It will be observed that the frame is supported entirely on knife edges crossing each other at right angles, making it impossible for the bees to wax the frame fast, and almost impossible for you to pinch a bee in putting the frame down, even if you take no pains at all, to get them out of the way. We prefer to have the tin rabbet reach up above the end of the corner as at A, because the bees are so much less disposed to try to propolize the bright tin; also when replacing the frames, the corner arms glide smoothly into place as soon as they strike the rabbet. The rabbet may be used without the corners, or the corners may be used without the rabbet, but neither of them alone give us a frame so perfectly movable; and as wood is always giving more or less, they can not hang perfectly true. Neither can a frame be slid on the rabbets up to its place as quietly as when all the bearings are of metal.

HOW TO MAKE THE FRAMES.

Our frames were first made of strips of straight grained pine, only ⅛ of an inch in thickness, and it is surprising to see how well such combs have stood. On one occasion a number of these heavily filled with honey fell from the top of a barrel, yet not a corner was injured, and not a comb broken; these were Gallup frames, however, only 11¼x11¼. For the Langstroth frames, we now make the top bar about 10-32, and all the rest of the frame 7-32. Adair, American, and Gallup frames are all made of 7-32 stuff throughout. The Quinby size may have a ⅜ top bar, but the bottom bars might all be not more than ⅛, were it not that the frames may be sometimes used for transferring, and that the weight of the combs would sag the bottom bar, which is a very bad feature, if we wish to work closely and avoid killing bees. The top bars would not require so much wood were it not that honey boxes are sometimes placed on them, and it is advisable to be on the safe side. When we depend entirely on the use of the extractor, we would prefer a space of half an inch between the ends of the frames; but for box honey, small bits of comb will be built in this space, more than will be the case if ⅜ only is allowed. It requires a *very* careful operator to work fast, and avoid pinching bees, when only ¼ or ⅜ inch is allowed.

The two following cuts may assist some in putting on the metal corners:

Fig. 1.

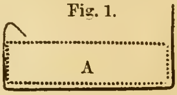


Fig. 2.

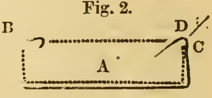


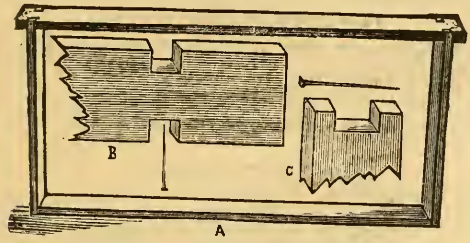
Figure 1, represents the points ready to be closed down and clinched into the wood, which is represented by the dotted lines A. A. Fig. 2, shows a point badly clinched at B, and one perfectly driven down at C. The line D. shows the direction in which the finishing blow of the hammer is to be given; in fact this blow should sink the metal slightly into the corner of the wood, drawing it up tight at the side C, and on no account letting it bulge out at B, nor allowing the point to curl up. A light, properly made hammer and a little practice will enable any one to make every point like C. Should you get one done badly, you can with a pair of plyers straighten it out and *make* it go right. The objection has frequently been made that this takes more time than to nail them; even if this were so, we are enabled to employ girls or other cheap help (we beg pardon ladies, but we never yet saw a community that did not furnish more or less females, who would be glad to get some such light work), who could not possibly nail good frames; then after they are done, their superior strength and lightness compared with nailed frames, fully make up the difference in price. We will send you a sample frame by mail, just as we would have it, for 15 cents. (American and Gallup size 12 cts.) including sample of rabbet and transferring clasp and you can test it by the side of your own frame in your hive. If the nailed ones do not seem awkward after using it, you, of course need not invest any further.

The metal corners were patented June 18th' 1872, but we have "repented," and hereby give the invention freely to our readers. If any one can make them cheaper than we do, we will try to rejoice, because it will benefit the people.

	Frames with metal corners, per hundred...	$5 00
20	Corners, metal, per hundred.................	75
20	" " top only, per hundred......	1 00
15	" " bottom, " "	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

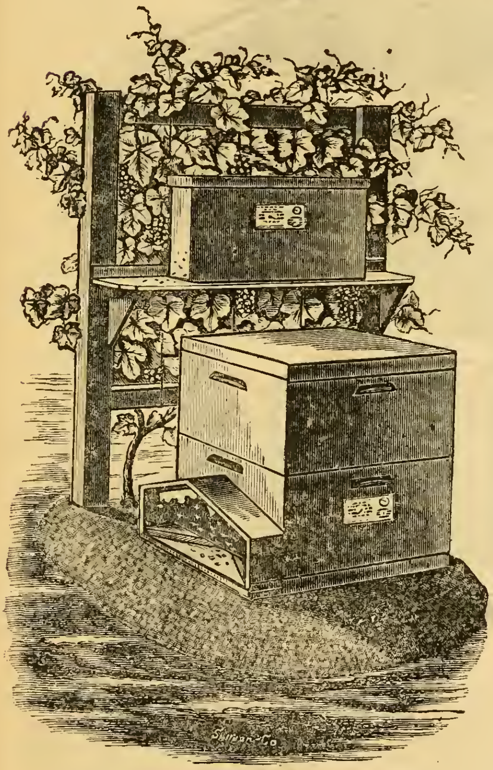
	Corners, Machinery complete for making	$250 00



FRAMES ENTIRELY OF WOOD,

Made as in the cut above; price per hundred, any dimensions, $2,50. The regular Langstroth, will be furnished at the above price in any quantity, but *odd sizes* must be ordered in lots of *not less* than 100. Sample L. frame of the above kind mailed for 7c.

HIVES.



SIMPLICITY BEE-HIVE.
Also 2 frame nucleus hive, on the shelf attached to the trellis.

One body and 1 cover in the flat, as sample to work from—one sample frame and sheet of duck included.. 1 00

One story hive for extractor (body 50c—2 covers 60c—nailing and painting 20c—quilt 25c—10 frames 60c—crating 10c).. 2 25

One story hive for comb honey is precisely the same as the above, substituting 2 frames of sections for 4 metal cornered frames........................ 2 25

The above 16 sections will be fitted with fdn., and starters ready for the bees, for 15c, and the tin separators added for 10c, making whole complete....... 2 50

The above two hives contain everything used in a 2 story hive. We simply use another body filled with frames or sections, for a 2 story hive.

For a 2 story hive for the extractor, add (to 1 story 2 25) body 50c—nailing and painting 10c—10 frames 60c—crating 5c, making complete 2 story containing 20 frames.. 3 50

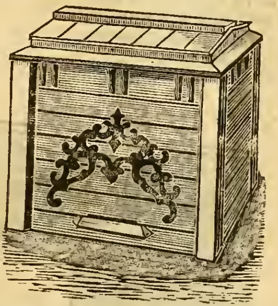
For a 2 story hive for comb honey add (to 1 story 2 25) body 50c—nailing and painting 10c—6 frames of sections 78c—1 metal cornered frame 6c—crating 6c, making complete 2 story containing 7 frames and 64 sections.. 3 75

If filled with fdn. starters 60c—if also filled with tin separators 40c, making $4 75, if two latter items are wanted.

An upper story filled with sections, fdn. starters and all ready to be set over any L. hive...............$2,75

To prepare the above hives for winter, put in place of the 2 outside frames, chaff cushions, division board price 20c each, and a thick one on top, 30c.

Iron frame to gauge size of above hives, and to hold them true when nailing, size 20¼x16 inside.... 50



CHAFF OR LAWN HIVE.

The Chaff hive is precisely the same as the above with the scroll work and brackets omitted.

They contain 10 frames below, and 14 frames or 80 section boxes above, well painted and finished complete, (Lawn hive $1. more)....... 5 00

If filled with fdn. starters and separators, $1.25 more.

Without frames chaff or paint, as sample to work from 2 50

These hives, if supplied with stores, will, we hope, need no attention whatever, from the time honey ceases until it comes again the next season.

Two frame nucleus hive, neatly painted....... 50

HIVES BY THE QUANTITY.

The demand for both Simplicity and Chaff hives in the flat, has been such as to warrant me in making arrangements to furnish them by the quantity, at very low prices. Now it is with these as with the fdn., we can only do it by having them made up in quantities ahead, all boxed or crated, ready to ship. To avail yourself of these low rates, you *must* send the exact amount of money specified, and order them in the quantity specified. Printed instructions with illustrations, will be furnished for setting up each kind.

SIMPLICITY HIVES IN THE FLAT.

		Per hive.	Per pckg.
3	1-story hives, no insides or bottom	60c.	$1.80
5	” ” ” ” ”	58	2.90
10	” ” ” ” ”	55	5.50
25	” ” ” ” ”	53	13.25
50	” ” ” ” ”	52	26.00
100	” ” ” ” ”	50	50 00

Metal rabbets are included with all the above, and hives are all made of seasoned white pine lumber.

You can use your ordinary Langstroth frames in the above hives, or we can furnish you metal cornered frames, and a sheet of duck for covering the frames, for just as much more; that is, the frames (10 to each hive and duck) cost precisely the same that the hives do. Two of the above hives make a complete two story hive, the cover of one of them, then being used as a bottom board. If you wish comb honey instead of extracted, fill the upper story with sections instead of frames. The 56 1 lb. sections, with the 7 broad frames and separators, including fdn. starters, will cost *three* times as much as the 10 metal cornered frames. The sections and fdn. cost but little, but the broad frames to hold them are pretty expensive with the tin separators, However, as a set will last indefinitely, we have only to purchase the sections, after we once get started. The all wood frames cost just half as much as the metal cornered frames.

CHAFF HIVES IN THE FLAT.

A Chaff hive is always a two story hive, and can be used in no other way; as the walls are double, the expense will be *three* times that of a one story Simplicity. Furnishing the lower story will cost just the same as the Simplicity, but as the upper story is wider, it will cost *one-half* more.

No nails are figured in the above price, but we can furnish them for 5c. per lb. A single story needs about ⅓ lb.

to make it good and strong. A pair of gauge frames are needed to nail the Simplicities conveniently, price $1.00

I have thought best to give you this list thus early, that you may decide in time, about hives for another season.

If you have never seen a Chaff hive, perhaps you had better order your first one made up, ($2.50) for there are a great many pieces to them.

HONEY.

EXTRACTED HONEY.

By the barrel@	13
" ½ " "	14
In tin cans of 10, 25, 50 or 100 lbs	15

Packages included at above prices.

COMB HONEY.

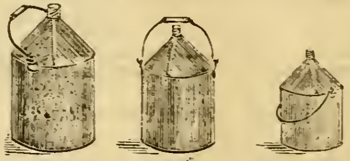
In 1 lb. sections, per lb	30

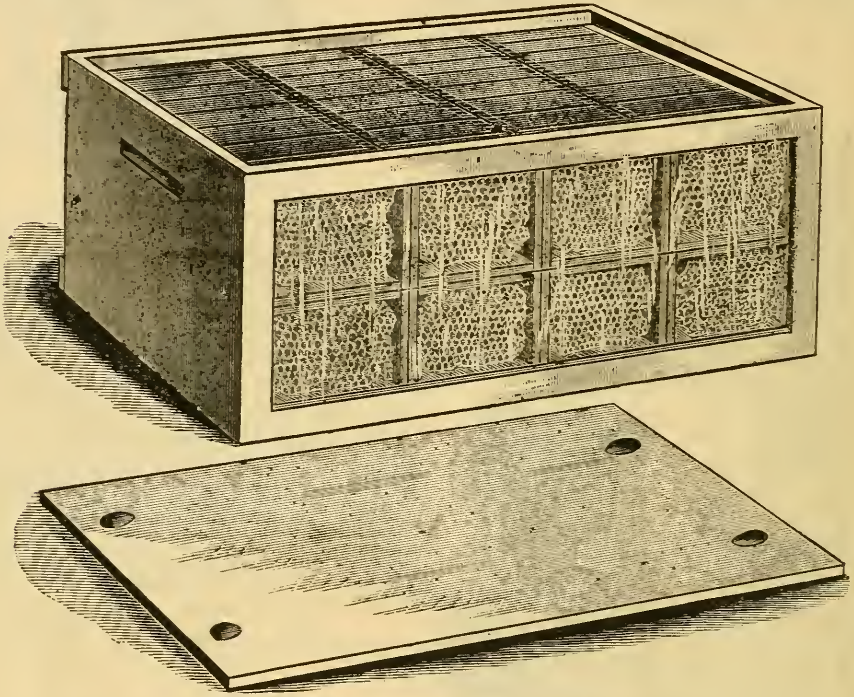
Case included with 48 sections.

JARS FOR EXTRACTED HONEY.

1 lb., square, per gross	$5 00
Corks for same "	75
1 qt. self sealing fruit jars, (holds 3 lbs. honey) Mason's patent, per gross	15 00

CANS FOR SHIPPING EXTRACTED HONEY.

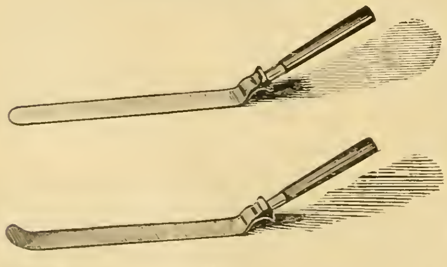

100 lbs. $1,00.
50 lbs. 50c
25 lbs. 25c.



SHIPPING AND RETAILING CASE FOR COMB HONEY.

This contains 48 of the 1 lb. sections and so far as our experience goes, may be shipped safely anywhere by express, without injury, for the express men can see just what it is. I presume they could be shipped as freight in the same way, on direct lines. The case, if kept clean, and treated to a coat of new paint occasionally, makes a very pretty case for retailing from, for the grocer has his honey neatly cased, and always in plain sight, and when a cake is sold, all he has to do is to raise the cover, and hand it out. Price of the case complete, 60c; without the glass, 40c: stuff in the flat, ready to nail, 30c.

HONEY KNIVES.



Honey Knives, price, $1,00, either bent or curved blades as shown in the cuts above. They will be mailed anywhere free, at the above prices, or a half dozen for $5,00; they will be furnished by express, for $9,00 per doz. Our honey knives are beautifully finished, with a solid ebony handle, are ground thin and sharp on both edges and have a long thin springy blade that is just as handy as can be, for a multitude of purposes about the apiary, aside from their legitimate purpose of uncapping. No hot water or anything of the sort is needed, to enable the blades to slice the caps right off in one entire sheet. Our preference is decidedly in favor of the straight blades.

LARVÆ FOR QUEEN REARING.

Many failures are reported with this, just because it is ordered from too great distances, or at an unseasonable time of the year. It should be borne in mind, that if it is out of the hive more than 48 hours, or if exposed to a temperature lower than 30°, the larvæ will be pretty sure to be dead. If the bees remove it from the cells, you may be sure it was either chilled or starved. Send to some one near you who has an imported queen, do not have the larvæ out of the hive more than two days, and you will be pretty sure to get good nice queens. As soon as received, you are to insert it in the center of a comb in the middle of the cluster of a queenless colony, and if it is all right, you will see them starting queen cells around it at once. Of course there must be no other eggs or unsealed brood in the hive, but it will be a very good idea to have some sealed brood.

LAMP NURSERY.

This is simply a hive made of tin, with double walls; the space between the two walls which may be from ½ to 1 inch, is filled with water, and this water is kept at an even temperature of about 100°, by a lamp under the hive. The lamp is to be enclosed in a box to avoid drafts, and the whole should be in a close room, to save the expense of oil. The tin hive is to be placed a foot or more above the top of the lamp chimney. When the oil is purchased by the barrel, the expense is but little more than one cent per day. Get your queen cells on the plan given in A B C, and when capped over, they may be taken away from the bees entirely, and the frame containing them hung in the nursery. If you have followed the instructions given, the queens will all hatch out long before the workers, and all you have to do is to place them in any queenless hive or nucleus, as soon as they are hatched. You need not open the hive to introduce them, but you can just let them crawl in at the entrance, and the loss will certainly be no greater than that of inserting queen cells. You can if you choose, have several combs containing queen cells in the nursery at the same time, and when we can have queens hatching every day for weeks, we really enjoy the fun. It is easy keeping a supply of cells on hand, when we once get started, and we do not examine our nursery oftener than about five times a day. It will be observed that with the lamp nursery, we have no cutting, nor mutilating of our nice combs, as we do where we cut out queen cells. When the queens are old enough to begin to gnaw out, they can easily be heard by holding the comb of cells, next to the ear, and as they are ready to introduce as soon as they begin to cut out the caps, they may be safely taken out with a sharp pen knife, and put at once where wanted. They sometimes kill each other when crawling about in the nursery, but not often unless there are bees present. We have found a half dozen or more crawling about peaceably together on first going out in the morning, but they would be certain to kill each other, if left until a few hours older. Price of nursery with lamp large enough to burn several days. $5,00.

LABELS FOR HONEY,

In blue and gold, dark bronze and gold, or in white printed in two colors, furnished with your own address, and source from which the honey was gathered, already gummed, post paid by mail. No order rec'd for less than 250. At these low rates, the full number mentioned *must* be ordered without the change of one single letter of the type..................1000, $3,25; 500, $2.40; 250, $1,80.

Same as above except that source of honey, and name of bee-keeper is left blank, put up in packages of 100, assorted colors, for both comb and extracted honey.—Per package post paid, 25c.

MICROSCOPES.

These are real compound microscopes, and quite a different thing from the double and single magnifying glasses so often called by that name. The one we offer at $3., is a very neat instrument carefully packed in a mahogany box, with implements for the work of taking regular lessons in the insect world. You will find with it, that a single bee will make a study for a long time. Sent by mail for $3.15, and if you are not pleased with it, you can return it at our expense, and the money will be refunded.

PRICE LIST OF QUEENS.

Imported queens will be $6 00, if I select the best to fill your order, or $5.00, if I select the poorest. What I mean by best, is those which are largest and lightest in color, that produce the largest and yellowest bees, and are the most prolific layers. It takes a long time to test a queeen for honey gathering, and therefore it would be nothing strange, if those sent out at the lesser price, are really most valuable.

Tested queens reared from imported mothers having all the above good qualities, $3.; with part of the above good qualities, $2.50, and the poorest, that I feel sure are not hybrids, $1.50. Now I am going to try to have the above satisfactory, and if they are not, you are to send them back, inside of 40 days and get your money or another queen, as you choose.

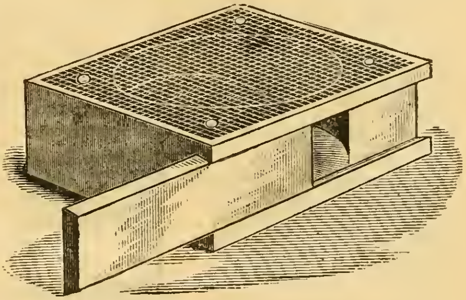
Young queens just commencing to lay, will be sold for $1.00 if you come and get them; if you want them sent by mail, send us 10c, for cage and postage.

Queens that have been tested and "found wanting," will be sold for 50c. I also reserve the privilege of sending out any kind of a queen that I do not like, as a 50c. queen. I have made the above conditions that I may be enabled to "pick out" queens to order, without doing any of you an injustice. The dollar queens, are always taken just as they come. If any of you can furnish them cheaper, I will rejoice with the rest.

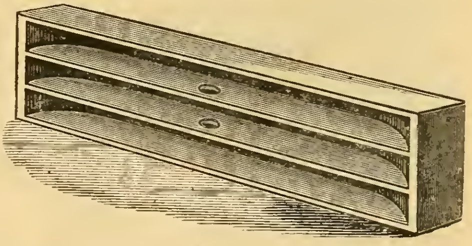
I do not think dollar queens can be furnished sooner than July 1st. but if our friends in the south conclude to "help us out" in the matter, I will let you know through Gleanings.

QUEEN CAGES AND BEE-FEEDERS.

There are two inventions I have made this year, that I am especially proud of; the Candy Queen Cage, and the Simplicity Feeder. They answer the purpose so completely, and are so clean and neat, that I should not have considered the price very high, at 25c. but when I discovered that we could make them so as to be sold for *only five cents*, I——I——well, as nearly as I can remember, I think I must have looked happy. Every time we fill an order for them, I say to myself, "Won't that 'fellow' be tickled, when he sees them and thinks of the insignificant price." I *do* like to see *nice* work at low prices, but I always feel "awfully miserable" when I am charged, or am obliged to charge anybody else, high prices for work that is not "nice." Now I will show you the cage and feeder, and try to stop "gossiping."



OUR 5 CENT CANDY QUEEN CAGE.



OUR 5 CENT SIMPLICITY BEE-FEEDER.

No directions are needed for using the queen cage, and almost none for the feeders. Fill it with honey, syrup, sweetened water, or even sugar with water poured on it, and then set it in one side of the hive, on the frames, in the portico, in front of the hive, or in the open air anywhere, and the feed will all be taken without a single bee getting drowned. Since the above cut was made, we have made the feeders longer and narrower, having two grooves instead of 3. They hold, just about 1 pint, and are sent safely by mail for 10c. postage included.

SECTION HONEY BOXES.

SECTION BOXES IN THE FLAT, PRICE PER 1,000 BOXES.

Any dimensions not exceeding 2x5x5.................$10 00

The above is 50 cubic inches; for larger sizes add 10c per 1,000 for each additional cubic inch or fraction of an inch, outside measure. Extra prices for less than 500.

Just right to fit in L. frames, 2x4¼x4¼......... 9 50

The above are crated in packages of 500 each, weighing about 50 lbs.

Sample by mail with fdn.............................. 5

If the grooving for holding the fdn. is omitted, 25c less per 1,000. Sections weigh from 7 to 10 lbs per 100.

10 | L. frame made 2 inches broad to hold 8 sections 5

25 | The same with 8 sections......................... 13

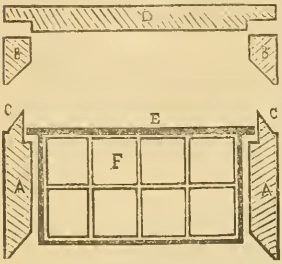
25 | The same furnished with fdn. starters all ready for the bees.................................... 20

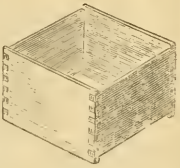
Adding tin separators to either of the above will increase the price 5c, and the postage 6c.

Broad L. frames to hold sections, per 100, in the flat $4.00
The above are made like the "all wood" frames.

TIN SEPARATORS

For the broad L. frame, per hundred, $2.00. Separators for the 3 frame box, per hundred, $1,50.



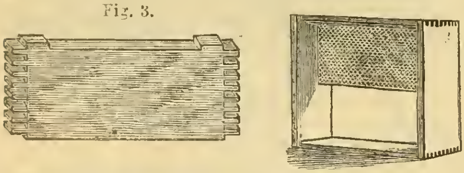


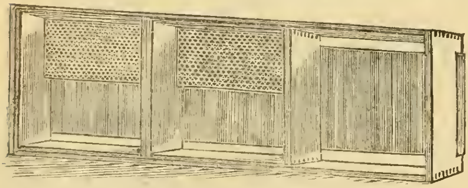
SECTION BOX.

SECTION BOXES AND THEIR POSITON IN THE HIVE.

The above cut and the cuts on the cover, will make everything plain, almost without explanation. As we send a complete section box with nice strip of fdn., and printed directions for fastening it in the frames, by mail for 5c., we will not attempt any description here. The cut on the left, shows one of the broad frames containing 8 sections, and A, A, are the ends of the hive. B, B, are the end strips that are nailed under the cover of the hive, and D, is the cover itself, before being nailed on to B. B. C, C, shows the shoulders that hold the cover on the upper stories, while the bevels hold it securely in place, and exclude rain and wind.

Fig. 3.

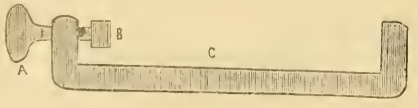




CASE FOR THREE SECTION BOXES WITH SEPARATOR.

A case of 3 section boxes, separators and fdn. complete, as in cut above, 10c; if sent by mail, 25c. This arrangement, is intended for box hives, or for tall frame hives. If preferred to the frames, they can also be used on the L. hive. This arrangement is essentially the same as the one used by Doolittle and Betsinger. As the price is very close, no discount can be given on larger quantities.

Section honey boxes, 8 in a broad L. frame, furnished with fdn. starters, and tin separators, the whole complete, ready to hang in the hive as seen at No. 12 and 13 on the cover, 25c. By mail, 56 cents.



Clamps for grooving stuff for section boxes, made of heavy wrought iron, price 75 cents.

SPRING BALANCE,

Is shown at No. 15, on the cover, a nice article.......$8 00

These scales are made weather proof, and when arranged to suspend a moderate sized colony, may be left out all summer. As the figures on the dial are large and plain, we can see at a distance the average yield of honey per stock, each day or *hour* even. When weighing stocks for winter, they shorten the work very materially.

STEAM ENGINES FOR HIVE-MAKING.

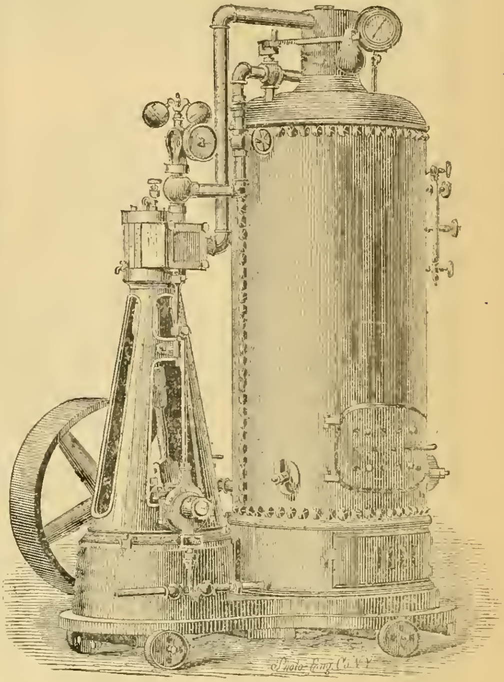


Photo-Eng.Co.N.Y.

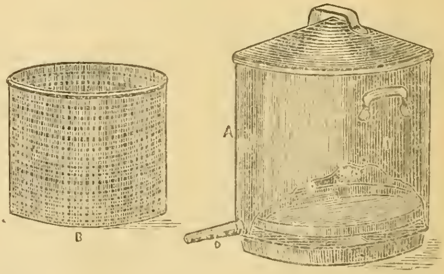
2 Horse Power Engine and Boiler,.............$150 00
3 to 4 Horse " " 250 00

These Engines are tested at 300 lbs. pressure, the different parts are made interchangeable, the work and material is guaranteed first class, and it is claimed that it is practically impossible to explode the boiler.

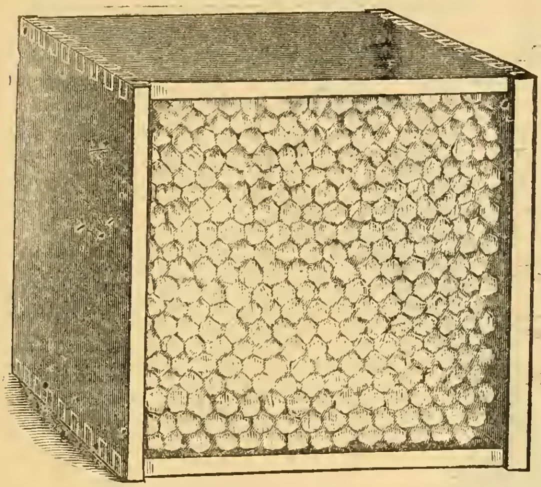
They are mounted on wheels, rendering it convenient for moving, and are complete in all parts, except the smoke stack, which should be a 6 or 8 inch stove pipe.

I have taken pains to look this matter up in regard to these small engines, and those we offer are I think, fully equal to anything made for anything like the price. They are furnished at the above prices, at the factory in Corning, N. Y. Although engines of 1 horse power are offered for sale, we think it will be much better to purchase one of not less than two horse power as above. The one horse power Engines are no cheaper.

WAX EXTRACTOR.



Price $3,50. This machine is very simple, for we have only to throw our refuse comb into the basket B, and set it inside the can A. Now put on the cover, and place it over a pan or kettle of boiling water: the steam will ascend all around B, and the melted wax will run down and flow out of the tube O. Under the end of this tube, is kept a pan to catch the wax. As fast as the comb sinks down, more can be put in, and so on. The machine requires no attention, except to fill the basket B. If you have no kettle that is 12 inches across the top inside, we can furnish a copper bottomed steam generator for $1,50.



A SECTION BOX FILLED WITH HONEY.

SOME of you have asked so many questions in regard to the Section Boxes of honey I thought I would give you a really good picture of one; have I not succeeded? You can have the frame as a model to work from, and you may show the honey to your bees telling them you wish the honey built clear up to the wood, like this one. They are 4¼ square, 2 inches thick, and weigh just 1 lb., and when you can produce packages like the above, you can sit in your apiary and work as independent as good honest folks like we are (?) ought to be, while customers inquire for and hunt us up, just for the privilege of taking all we can raise, at 25c. per lb. Several tons of such honey could now be sold in the city of Cleveland alone, at the above price.

QUEEN REGISTER.

No......

EGGS.

MISSING. BROOD.

NOT APPROVED. CELL.

APPROVED. HATCHED.

LAYING.

1.2.3.4.5.6.7.8.9.10.11.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.

MARCH.
APRIL.
MAY.
JUNE.
JULY.
AUG.
SEPT.
OCT.

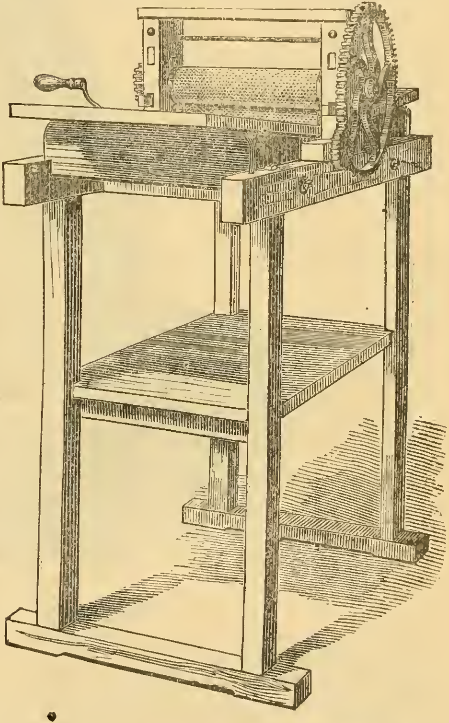
DIRECTIONS. Tack the card on a conspicuous part of the Hive or Nucleus; then, with a pair of plyers, force a common pin into the center of each circle, after it is bent in such a manner that the head will press securely on any figure or word. These Cards mailed free, at 10c. per doz. Use Tinned, or Galvanized tacks; they will stand rain, etc.

A. I. ROOT, MEDINA, O.

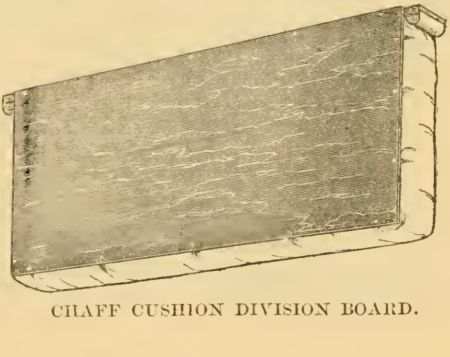
THE 12 INCH COMB FOUNDATION MACHINE.

Many have asked why these are $100.00 while a 9 inch machine is only $50.00, and a 5 inch, only $35.00. When we increase the length of the rollers, we must also increase their diameter, or they will spring apart in the middle, and not produce perfect work. Increasing their size, makes them turn much harder, because the surface of the wax touching at once, is much greater, and this necessitates back gearing, as shown below. By using shafts of steel, we can use a very small roll, for the short distance of 5 inches, and it is quite difficult indeed, to make as thin and perfect fdn. with the 12 inch machines, as we do with these small single geared ones.

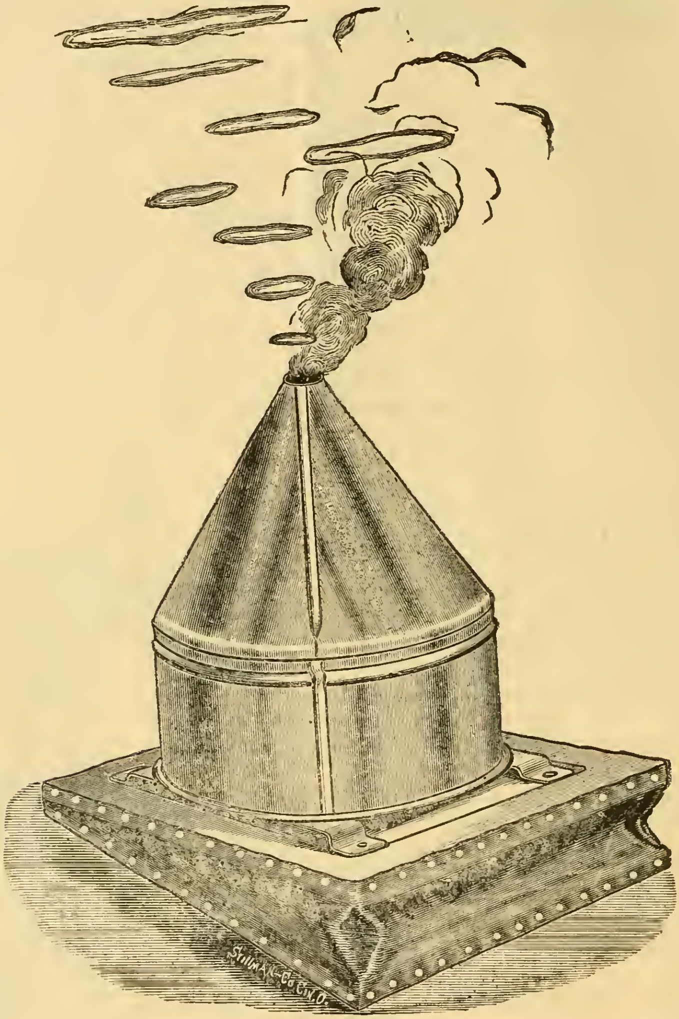
It is the rolls, that make these machines so expensive, and as each cell must exactly match every other, to within a hair's breadth, or less, the work is necessarily very expensive if we would have thin and accurate combs. It is true we can make rolls that will indent thick sheets of wax, which will be used by the bees, at a comparatively small expense, but my friends have you ever figured up what the wax costs for such combs.? Almost every old hive, contains more than enough wax to make a complete set of new combs, if it is only put in the right shape, and you need not have a drone cell in the hive, unless you wish.



FOUNDATION MACHINE WITH 12 INCH ROLLS.



CHAFF CUSHION DIVISION BOARD.



THE SMOKER I PREFER.

THE SIMPLICITY SMOKER.

It don't tip over, never "goes out," makes nice rings of smoke to please the children, and there are "lots" of other nice things about it that I can not think of now. When you get one, you will know all about them. It is, in fact, such hard work to make it go out at all, that we have been obliged to add a damper to it since the engraving was made. You can burn anything in it, chips, "patent right hives" that you do not want, stove wood, corn cobs, &c., &c. The nicest material I have ever used, is peat, but ours is all gone, and I don't know where to get any more. Very dry corn cobs, make a splendid smoke and last a long while, but it is some trouble to light them the first time. After you have been using them, if you extinguish them by means of the damper, you can light the charred fragments next time, with a match. You can chop the cobs in pieces with a hatchet, or let the children do it, and then keep them with some matches in a box where they will always be dry. Your smoker should also be kept in-doors out of the rain, but if you are sometimes careless, as I am, and get some part of it broken or injured, we will sell you the different parts at the following prices: The postage is given in the left hand column.

25	Smoker complete	75
	A larger size will be furnished if wanted, for 25c more.	
15	Bellows complete	40
10	Tin case for fuel	35
3	Leather for Bellows	15
3	Pair of steel springs	10
5	Top of tin case	10

After you have bought one smoker, if you want another for your neighbor, we will give you 10 per cent off. If you will buy a whole dozen, and take them all at one time, you may have them for 50c each, and that is the very best we can do in the way of wholesaling.

P. S.—If you wish to see the revolving rings, get something that will make a perfect cloud of smoke, peat is best, and tap briskly on the bottom board. When you can get the knack of it, you can have the air full of them, all spinning away like——There! I almost forgot one more idea. Whenever the children get stubborn and really need punishing——on a second thought, I think I won't tell it after all.

way at fault, you can simply remove her and substitute another, without even so much as disturbing the regular daily routine.

So long as this is the case, we have little to fear from any disease that does not attack or interfere with the brood or young hatching bees. Luckily we have but one such disease. This is termed FOUL BROOD, and the subject will be found fully discussed under that head. The disease next in importance, is DYSENTERY, and many seriously doubt whether this should be called a disease, at all, unless, forsooth, we should say a boy had some disease when he ate green apples, or went about with his feet wet on a bitter cold day. The difficulty seems nearly allied to what has been, for the past few years, termed, for want of some better name,

SPRING DWINDLING.

In olden times, and up to within the past ten years, bees seldom died with honey in their hives, and when it was announced that good colonies of bees were gone, leaving their combs filled with honey, many were incredulous. Very soon however, some of our best bee-keepers, began to lose in the same way, and ere long, whole apiaries of hundreds of colonies, were swept off in a few weeks, during the months of Feb., March, and April. If I am not mistaken, as soon as the bees began to get new honey from fruit blossoms or other sources, they began to build up, and then everything went along as usual. The blame was first thrown on the extractor, because some bees died in hives from which the honey had been extracted, and others in the same apiary that had their combs left undisturbed, came through healthy as usual. This undoubtedly made a difference, for the honey gathered in the fore part of the season is often more wholesome than that gathered late in the fall; but it was by no means *all* the trouble, for apiaries having only box hives were in many instances devasted entirely. Exposure to the weather was suggested as the cause, and fine wintering houses and cellars were constructed, and for a while everything seemed prosperous, but very soon they died in these repositories also; the bees coming out on the floors in the dead of winter, besmearing their hives, and deporting themselves in almost any but a satisfactory way. Some succeeded so well with bee-houses and cellars, that they have all along adhered to them, but so have others with out door wintering, and in many localities, bees have wintered under almost all circumstances, if only supplied with plenty of food.

In a great majority of cases, it has seemed pretty conclusive, that the trouble was caused by bad food; the Italians may have been somewhat to blame for this, for during unfavorable seasons, they stored up large amounts of honey from the aphides or honey dew, or from other sources that bees are not usually wont to frequent. The use of the extractor has many times, without doubt, aggravated the trouble, as we have mentioned, where all the combs in the hive have been repeatedly emptied, for in such a case, the bees are driven entirely to the late gathered and often times unsealed stores, for their winter supplies. To remedy this matter, it was suggested that their honey be *all* extracted, and that they be wintered entirely on stores of a good quality of sugar syrup. This course proved successful, in the great majority of cases, but by the time we got well into it, the dwindling mania had partially gone by, and those that were left with their own stores, wintered all right also, so that very little was proven. Besides, it was a great deal of trouble, to do this feeding at a time when the bees were much disposed to rob, and so, it, like all the other remedies, was gradualy dropped. This was especially the case when extracted honey became so cheap that it was no object to extract and sell it. Again, this bad fall honey that killed the bees one spring almost as surely as fly poison kills flies, if kept over until the next, could be fed to them with perfect impunity. This may not have been always the case, but it was in some quite well authenticated instances. "Of course then it was a disease," said many, "and it is a disease that is catching too," said others, "for after it got among my bees, they 'jest all went'."

Well, my friends, I really do not know whether it was a disease or not, and I do not know that it matters very much. We learned pretty thoroughly, that whatever it was, it usually came in the spring just about the time the bees began to rear brood considerably, and that the old bees were generally gone, just after a bad spell of spring weather.. Also that the very "baddest" honey, if I may be allowed the expression, did no harm at all, if fed in very warm weather. One more fact, and I am done. Colonies that were queenless, or that were by any means entirely prevented from raising brood, seldom if ever caught the——the "dwindling." I declare there *is* one more fact after all, that I had almost forgotten. It is that very strong colonies with tough old brood combs almost invariably pull through, especially if they have a good lively queen. Such colonies will stand like the sturdy oak, year after year, while the new stocks that are so rapidly built up, vanish like the smoke, from their new combs and small clusters of brood.

In view of the above facts, and after trying almost everything else, I, at the suggestion of friend Townley of Tompkins, Mich., began to experiment by making the bees fill their brood chamber, and surrounding them with chaff, brought up close to the bees.

My first experiment was made on a pretty strong colony. The chaff packing was about 4 inches thick, on all sides. These bees did not commence brood rearing as soon as the others, but about the time natural pollen appeared, they commenced to gather it briskly, and when fruit trees bloomed, they began to send a stream of hot air out at the entrance that would melt the frost in front of the hives for several inches, after a cold night. Do you suppose sudden changes of weather affected them ? or that they caught the "dwindling"? Of course they did not, and what is still more cheering, I have never had a case of dwindling in a single hive thus prepared, although I have practiced the plan for the past three winters. Of course something may happen yet, to upset all the chaff experiments, as has repeatedly been the case with other things, but I feel pretty sure that a good chaff packing close to the cluster of bees, will do away with all the troubles we have experienced with cold and backward springs. With the chaff cushions and chaff division boards, you can very easily make the experiment on any colony that has begun to dwindle down just about the time they commence to rear brood. When I first stocked our house apiary, I was much taken up with the idea of having the hives simply covered with a single thickness of cloth, that we might more easily open and work with the hives. As the house was to be kept free from frost, I thought there would be no necessity of any other covering, even in winter; I had the worst form of spring dwindling I ever knew, and lost every colony except a few that were in old tough thick combs. The next winter I prepared them just the same, but placed heavy cushions of chaff, at the sides and above the bees. They all wintered without a particle of dwindling, and by pushing ones hand under the cushion, directly over the bees, it was found to be as warm as if you were touching a living animal. Now all this heat had, the winter before, been passing off into the air, almost as fast as the bees generated it. Do you wonder their little bodies were exhausted in the attempt to rear brood and keep warm, and that they "got sick ?"

OTHER DISEASES.

I believe I do not know any other, unless it be one that I can give no name for. It afflicts the bees in warm as well as cold weather, and the inmates of heavy hives, as well as weak ones. The symptoms are a sort of quivering and twitching motion, and finally the bee becomes so much emaciated that he looks like a shiny black skeleton of what a bee should be. I have seen bees thus affected, in perhaps a dozen or more colonies, but it all disappeared after a time, except in one colony. That one I broke up, by destroying the queen, and giving the bees to other colonies, after they had become pretty well reduced. A neighbor has also lost a colony from the same trouble. I have noticed it moreor less, for the last four or five years, but have seen it only in the two apiaries mentioned.

It may be well to mention that when a bee is crippled or diseased from any cause, he crawls away from the cluster, out of the hive, and rids community of his presence as speedily as possible; if bees could reason, we would call this a lesson of heroic self-sacrifice for the good of community. If your bees should get sick from some other cause than I have mentioned, I would advise putting enough together to make a good lot, surrounding them with chaff cushions, close up to the cluster, and giving them plenty of sealed honey, also close to the cluster. If you have not the honey and the weather is cool or cold, use candy. If the cluster is small, give them a small piece at a time, right over the cluster, under the cushions.

Weak colonies sometimes get a mania for destroying their queens, in the spring; this can hardly be termed a disease, and yet the colony has become to a certain extent demoralized, and out of its normal condition, much as when they swarm out, as given in ABSCONDING SWARMS; they will generally come out all right if fed carefully and judiciously, as we have described. Bees are always prospering, when they are accumulating stores, and they are very apt to get astray in some way or other, when they are very long without some way of making daily additions to their "stock in trade," unless it is during the winter, when they are as a general thing mostly at rest. Almost all sorts of irregular vagaries, may be stopped, by regular daily feeding, and I would advise the candy, for it furnishes both honey and pollen, if made with the addition of flour, as we have advised.

DIVIDING. This term is usually applied to the operation of increasing the number of stocks, by putting half the bees and combs into a new hive, just about swarming time; and is really one method of artificial swarming. If you have an extra laying queen to give the queenless portion, it may do very well, but otherwise, it is a wasteful way of making increase, and has mostly been abandoned. If the bees are just ready to swarm, and have queen cells pretty well along, it may answer very well; but even then, it would pay better to take but two combs with the queen cell, and get a laying queen before making the actual division, as advised in ARTIFICIAL SWARMING.

DRONES. These are large noisy bees that do a great amount of buzzing but never sting anybody, for the very good reason that they have no sting. The bee-keeper who has learned to recognize them both by sight and sound, never pays any attention to their noise, but visitors are many times, sadly frightened by their loud buzzing. We will commence as we did with the worker bees, at the egg, and see how much we can learn of these harmless and inoffensive inmates of the bee hive.

If our colonies are prosperous, we may find eggs in the drone comb of some of the best hives as early as March, but not, as a general thing, until April. You can tell the drone cells from the worker at a glance, (even if you have never seen them) by the size, as you will see by looking at the cut on page 24. Whenever you see eggs in the large cells, you may be sure they are drone eggs. I do not mean by this that the eggs that produce drones look any different from any other eggs that the queen lays, for in looks they are precisely the same. They are almost the same in every respect, for the only difference is that the egg that produces the worker bee, has been impregnated, while the others have not; but more of this, anon. The egg, like those producing workers, remains brooded over by the bees, until it is about 3 days old, and then by one of nature's wonderful transformations, the egg is gone, and a tiny worm appears, a mere speck in the bottom of the cell. This worm is fed as before, until it is about a week old, and is then sealed over like a worker, except that the caps to the cells, are raised considerably more; in fact they very much resemble a lot of bullets laid closely together on a board. They will begin to cut the caps of these cells in about 24 or 25 days; the caps come off in a round piece, very much like those from a queen cell. Well, we have now got a real live drone, and I would show you a picture of him were it not winter time so that none are to be procured for our engraver. I have examined all the pictures I can find, but they are far from being truthful and accurate.

The body of a drone, is hardly as long as that of a queen, but he is so much thicker through than either queen or worker, that you will never mistake him for either. He has no baskets on his legs in which to carry pollen, and his tongue is so unsuited to the gathering of honey from flowers, that he would starve to death in the midst of a clover field.

I presume the young drones are ready to leave their hive after they are about two weeks old, and they do this shortly after noon, of a warm pleasant day. They come out with the young bees as they play, and first try their wings, but their motions are far from being as graceful and easy, and they frequently tumble about so awkwardly that as they strike against your face, you might almost think them either drunk or crazy. I do not know how we can very well decide how old a drone must be, to fulfill the sole purpose of his existence, the fertilization of the queen, but should guess any where from three weeks to as many months. Perhaps they seldom live so long as the last period named, but I think they sometimes do. Many facts seem to indicate that they, as well as the queen, fly long distances from the hive—perhaps two miles or more. I believe we have never had any very satisfactory evidence that the meeting between the queen and drone, was ever witnessed by the eye of man, but for all this, there can be but little question in regard to the matter. The drones go out of the hive, circle about, and finally vanish out of sight in the heavens above; the queens do the same. In from 15 minutes to an hour, or possibly a couple of hours, the queen returns with an appendage attached to the extremity of her body, that microscopic examination shows to be the generative organs of the drone. These facts have been observed by hundreds of bee-keepers, and are well authenticated. In attempts to have queens fertilized in wire cloth houses, I have, after letting the queens out, seen the drones pursue them until both parties vanished from my sight. Still another fact; if you take a drone in your hand some warm afternoon just as he has sallied from the hive, and press him in a certain way, he will burst open something like the popping of a grain of corn, extruding the very same organ we find attached to the queen, and dying instantly. It is generally conceded that he dies in the act of fertilization, but it is not, I believe, as yet explained in what way the queen frees herself so completely from him. If both fall to the ground as some other insects do, it does seem as though somebody would have seen them, ere this. I believe we have had reports through our Journals, of queens and drones falling to the ground, but they took wing and flew away, before a close and careful examination could be made.

In the fall of 1876, I saw a swarm of black ants sporting in the sunshine. A close look showed them to be both males and females, and as pair after pair fell to the ground, I had ample opportunity of noting all circumstances. In this case the drones at first seemed paralyzed, but after the queens flew away, they revived and afterward flew away also. One point here, particularly impressed me; the ants of both sexes were in such countless thousands, that they must have come from all the ant hills for, I should say, miles around; the result was as you see, that there was hardly a possibility of insects from the same family meeting. Now is there any other way in which the strain of blood could be so effectually crossed with that of some distant colony, as by this huge jubilee of both sexes?

Queen ants, like queen bees, seldom if ever come out of their homes at any other time, and, as if by some preconcerted arrangement, they meet and mix up apparently for the very purpose of effectually preventing "in and in breeding," as it is usually termed when applied to stock. Do queens and drone bees, meet in the same way, in vast numbers? Many circumstances seem to indicate they do, yet it lacks, like many other things, positive proof. Drones have been seen in out of the way places, in larger numbers than we would think could possibly come from one hive, and many have heard their loud humming, who have not seen them. The fact that a queen should, in so short a time become fertilized, after leaving the hive, would seem strange, unless it really were a fact that she was called to the swarm of drones by their loud humming, (which she would instinctively hear from a long distance) flew among them, fell to the ground and tore herself loose from her dead mate by her strong limbs, and then returned to her hive, having been absent only a few minutes. I have ventured to theorize thus much, hoping that our friends will aid in corroborating or contraverting, as the case may be, the facts as given above.

GRAPE sugar is made of corn, and not potatoes, as a correspondent suggests.

ONE edition of the A B C book, is sold already, and the second with some improvements will be out in a week. Price 25c., or neatly bound in leather and cloth, 60c. post paid.

THE Baron of Berlepsch, the Great German beekeeper who verified and gave to the world the Dzierzon Theory, died Sept., 17th, '77, so we learn from the *A. B. J.*

FDN. with very fine copper wires rolled into it has been suggested, to prevent the sagging of the brood combs, and we can make such without any trouble, but I am sure no such thing is ever needed, if we use good firm wax, and manage properly.

SEVERAL are talking about chaff hives with the upper story movable; these cannot well be made as warm, are very unwieldy to handle, and much more expensive. The permanent 2 story as we make them, are I think much the easiest and best, to make and handle.

DID you ever! We have this morning (Dec. 29th), had several letters from our own State and from N. Y., stating that the bees were bringing in huge loads of pollen, from the dandelions, which are in full bloom. Friend Roop of Carson City, Mich., says his bees are bringing pollen from the witch hazel. Brood will be started, but if the hives are well protected, and have abundance of food, it will only make the stocks stronger. It will do no harm.

I FEEL that I must say a word to the host of kind friends who have spoken in such strong terms of approval of the Home papers. When I first took up the work, I felt that there was something for me to do in that direction, but could only dimly see where duty was calling. In the outset I was almost frightened out of the project by one or two who did not believe in mixing bees and theology as they termed it; and to feel that I was trespassing on no one, I enlarged the Journal, and made these two leaves gratuitous. Since then, no one, that I know of, has ever complained that GLEANINGS was not of itself worth the money; and to my surprise and joy, I very soon began to get most earnest and encouraging words from friends in almost every remote corner where GLEANINGS made its way. Just now, a letter has come all the way from Australia, urging me to keep up the Home papers, and mentining the good they were doing away off there. As the new subscriptions come in, one after another seems to bid me be of good cheer and doubt not; telling me that I am not alone, and that my words have not been unheeded. May God bless and guide you all, and may he help us to feel how much we need the help of each other, in striving for that straight and narrow path. Do not forget to pray for me; that neither praise, flattery nor prosperity, should God see fit to give it me, may lead me astray; but that I may feel that even GLEANINGS, belongs to him, and not myself: and that to him belongs all the praise for whatever it may accomplish.

Honey Column.

For sale at 11 cents, net, 1000 lbs. white honey, extracted, in two large molasses barrels. Samples sent on application. JOS. DUFFELER.

Wequiock, Brown Co., Wis.

Heads of Grain,

From Different Fields.

I HAVE kept bees for 15 years, in box hives most of the time. I now have 65 swarms; 60 in movable comb hive, and 5 in box hives, which I shall transfer next spring if all goes well. I bought 3 Italian queens and introduced them all right. I have tried the fdn. and like it first rate. I have the right to use the Isham box and like it pretty well. Do you think I am on the right track? Bees have not done very well this year; I had 44 in the spring, increased to 65, and took about 500 lbs. of box honey. Weather is very dry. Enclosed please find the view of my place. BENJAMIN FALKNER.

Wyoming, N. Y., Dec. 11th, 1877.

Well, really friend F., I should think you were pretty nearly on the right track if I were to judge from the excellent stereoscopic view you have sent. Your picturesque location, on the side hill, with your hives arranged in terraces tier above tier, is very pretty indeed, but I would suggest that you place the hives a little farther apart, and the rows a little closer together. You would then get them a little nearer your honey house, and thus save much laborious carrying, if you should happen to get 100 lbs. of honey from each hive some season. I should rather think you had been patronizing patent hive men from the number of different styles of hives we see. It seems to me there would be a fine place for a Sabbath school over among those trees on the top of the hill, friend F., and if I were sure that were the place where you were at work every Sunday, I should not have the least doubt in the world about your being on the "right track," nor would you. May God bless and guide you and all who call that pretty little spot "home."

I started 1st of May with 60 colonies have 87 now; made 6,000 lbs. surplus mostly extracted. Have sold the same for $10. per hundred; I put it up in butter firkins, charging $1,00 for keg, then it did not make much odds to me whether people took a full keg or not. The month of May was a hard month here for bees, mine were killing their drones when fruit trees were in bloom. JAS. SCOTT.

Epworth, Ia., Dec. 13th, 1877.

The grape sugar will prove a sure and effectual remedy for killing off the drones during a dearth of honey, for it will keep brood-rearing going nicely, and the bees do not like it well enough to allow it to incite robbing. As soon as honey from the fields is to be obtained, they will abandon it altogether.

What do you think? N. C. Mitchell was in the southeastern part of this county this summer and got up a class. Even W. Meadows took lessons *after* reading GLEANINGS. I had warned some of the bee-keepers in that locality to *beware* of him, for I had heard he was to be there. About 2 weeks ago a Mr. Lehman, from Missouri, was in our city with the Lehman hive. I told him I would call at the hotel and see his *wonderful* hive, that even Mr. Langstroth admitted was a better one than his. When I called on Mr. Lehman, he was not in. Though he was in our town two weeks, he did not again call on me till the evening before he was to leave, and that night he had an engagement. He gave *practical* bee men a wide berth.

I put my bees in the cellar on the 3d inst. Temperature out door 40°, cellar had stood at 50° and the bees are buzzing and carrying out the dead. This is entirely too warm, and some of these freezing nights I will bring the temperature below 40° if I can. T. G. MCGAW.

Monmouth, Ills., Dec. 15th, 1877.

INTRODUCING QUEENS WITHOUT BEES WITH THEM.

Your reply to Lawrence Johnson, (see page 230 Dec. No.) does not seem to me to meet the case. When I commenced Italianizing I lost several valuable queens in just about the same way. I watched proceedings and discovered that the bees would try their best to sting the bees in the cage. I made up my mind that if the workers were left out they would be less vindictive. Since then I have taken out all the workers, i. e., left only the queen in the cage and have lost none in that way. This method gives the new queen a better chance to take care of herself. In one case bees and queen were all killed in about two hours. Another queen was immediatley put in the same cage alone and introduced successfully. G. B. REPLOGLE.

Unionville, Iowa., Dec. 12th, 1877.

We have often introduced queens alone, but never thought of its making the difference you mention. From what we have seen of their ways of doing, we are somewhat inclined to think it not always the case. Should careful experiments verify your position in the matter, we will give it a place in the A B C, and we thank you for calling attention to it.

There was a bee tamer here some time ago who was going to teach me to tame bees for $2.50. I told him if he didn't want to be put in the humbug list he would better not say anything more about bee taming. Some of our neighbors paid him for teaching them the trick, but I don't know how it is done nor do I care to; I went "through the mill" with patent hives. They can't get me any more on patents nor bee taming nor anything of the sort. I sold my honey for 20c per lb. in St,Louis, Mo., JOHN BOERSTLER.

Gilead, Ills., Nov. 11th, 1877.

I started in the spring of 1877 with 10 stands of Italians. I increased to 20 and sold 550 lbs. honey. I took no honey from them after the first of July, and they have plenty for winter. They have so much that it runs out of the hive every time we have a cold spell. What is the cause, and what the remedy? I would be glad to have some light in the matter. The past season was my first in bee-keeping. I did not get as large a yield as some of my fellow bee-keepers but am satisified with what I did get, and hope by the aid of your Journal to do a little better next season. I had 6 out of 11 of my queens, the past season, fertilized by the blacks. One of my swarms went to the woods, and I followed them to their new home. I thought they should not get the better of me, so I chopped the tree; took them home and clipped the wings of the queen. That did not suit their taste, and their queen was superseded by a hybrid. I shall dispense with the hybrids in the spring. If you can furnish me a half dozen hybrid queens reared from imported mothers, I will send my order in as soon as they can be obtained. JOSEPH HAYMAN.

East Ringgold, O,, Dec. 14th, 1877.

We think the honey runs out because the hive is so large they cannot keep the whole interior warm, and the frost cracks the combs; their breath also condenses on the colder portions, forms icicles, and when a thaw comes, this mixes with the honey, and the sweetened water runs out at the entrance. The remedy is to have the winter apartment small, and protected so that frost does not get in. At present, it looks as though we should be entirely unable to supply the demand for queens; and to avoid disappointing our friends, I think we had better make no promises at all. If you send us your orders, we will do the best we can, but we shall, in all probability, have to purchase queens from North, South, East and West; and you really must not scold, if we hand your order to some other person to fill, in default of a better way. Of course orders will be filled in rotation, as far as possible.

MAKING BEES PAY.

I bought 1 swarm last May, and now have 6 good swarms all packed in chaff hives with honey enough to winter. I have been watching the reports with regard to your fdn. So far every thing seems to move favorably, but will it pay, is the question. I am not satisfied yet; I believe in making the bees pay for what I buy. Friend Butler seems to, but a great many do not. My bees have not given me *any* surplus this season. I have not expected it, for it has not been a good one with us. J. A. YOUNG.

Parma, Jackson Co., Mich., Dec. 12th, 1877.

I perfectly agree with you my friend, that bees should pay their way; perhaps some of your neighbors say your bees do not pay because you have got no honey from them, or received no *cash*. Were you to sell the six you have made from the one, you could show a good profit very readily. Have not your bees paid all the same, whether you sell them for what they will bring, or keep them? Where honey and bees bring but a small price, it may not pay everyone to purchase fdn., but as a new swarm will frequently pay for themselves the first week, if supplied with comb, I think it very likely they will pay for the fdn. in two or three days. The expense of fitting a hive, for a new swarm, with fdn. in every frame, is now less than $1.00; they would be ready to store honey in them, in 24 hours, and I have had new swarms store 25lbs. of honey in a hive full of empty comb the first 2 days after hiving; what do you think about it?

ITALIAN BEES WORKING IN BOXES.

Some have complained that their Italian bees did not work so readily in boxes as the blacks. It is a fact that the Italian bee does not seem to cluster in boxes as readily as the black bee, while the Italian bee will commence storing surplus from one week to ten days sooner; but they are inclined to build their combs upward. To avoid this we use the fdn., which we have found almost an indispensable article in the management and success of bee culture. We cut our pieces as follows: if our box is 6 inches deep, we cut fdn., two inches for top and run it to a point within a half inch of bottom of box, V shaped; it takes but little fdn. and the bees will commence and form their clusters within a few hours, and by the time the black bees will commence in theirs, with the same treatment the Italians will have their boxes from one half to two thirds full. These are facts that cannot, and will not be denied by any practical bee-keeper who has had experience with both kinds.

A. F. MOON, Rome, Ga., Dec. 15th, 1877.

AGE OF BEES.

I am a new hand at bees and want to learn as much as possible about them. I have 6 swarms of blacks, one of which is queenless and has been since July 8th (3 months). How is that? I see somebody says a bee lives but 45 days in the summer time. I tried to divide, or did divide the swarm July 8th, putting one-half the frames and bees into another hive. After two weeks, I examined and there was no queen, brood nor eggs in either hive; the queen had taken possession of one of the small boxes and I think had been there a long time. I transferred the combs and queen to a frame, put them back into the hive and they are all right; to the other hive I introduced two queens and got them killed, and have put in two cards of brood at different times and they won't raise a queen. I think perhaps they have a fertile worker or they accept one as a queen.

Now this is my bad luck. I have another swarm that I thought did "big things" before I saw Doolittle's report, but now, it looks small beside his; this hive gave 60 lbs. of box honey and 3 large swarms.

I filled 3 boxes with fdn. and set them over 3 boxes that the bees were at work in, and they left the under ones and filled the fdn. boxes first.

B. F. PRATT, Dixon, Ill., Oct. 7th, 1877.

We say bees live but 3 months on an average, during the working season, but by this we mean *working* bees. Your bees without a queen, probably did very little work, and would therefore live, perhaps 5 or 6 months. Again, I suppose they had eggs in the combs at the time of division; if so, you had bees hatching for 3 weeks afterward, and these are but little more than 2 months old at the date of your writing. The better way to test this matter, is to give an Italian queen to a stock of blacks. If you examine the hive 3 months after the last black bee is hatched, I think you will find few, if any, left, providing you make the experiment in some of the spring or summer months.

It is written, "Cast thy bread upon the waters and it shall return unto thee after many days." Last April, I received a copy of GLEANINGS free, from you, (April No.), and now enclose $1.00 for a year's subscription, beginning Jan. 1877. I bought one hive of Italian bees of Mrs. Adam Grimm, through her advertisement in GLEANINGS, got them safe May 10th, 1877, and have 3 hives from them. I lost one while away, and on 28th of July, the original swarm went to the woods. I got 65 lbs. box honey and would have had 25 lbs. more, had not some showmen carried one hive out, and partly robbed it before I caught them at it and drove them away. They carried off 10 to 15 lbs. box honey, and burned part of the bees.

G. W. WHITE, Victor, Ia., Dec. 11th, 1877.

I believe "showmen," are proverbially addicted to this kind of business, and while I would by no means advise unnecessary harsh treatment, I would suggest that they simply minister to the wants of the people. If we patronize grog-shops, they will increase and multiply; but if they do not sell enough to pay expenses, they will very soon engage in some other business, without feeling hard toward anybody. Whenever we patronize circuses, I fear we encourage and help along, very bad men and women. I have been to almost all that ever came along, through all my life, until within the past few years, and I assure you I would much enjoy going now, with the children, did I think it were possible to separate the good from the bad. I believe it is generally agreed that a moral menagerie, would never pay *traveling* expenses. There are towns where circuses never stop, because they say they never pay their "salt;" now shall we help to make our town one of this class, and save our bee-hives, buggy whips and curry combs, or go to the show and listen to profanity that is uttered on purpose to make small boys fairly tremble in their shoes?

I now have over 50 hives, and over 90 under my management and will have a hard time to be ready for the "spring campaign" in good order. I am making chaff division boards with the thin stuff of strawberry crates for sides, and they are splendid. I think this, one of the A. No. 1 modern improvements. Do you think I could sell my honey if I should send it North in good shape—in sections, in May? I tell you honey is a drug here at almost any price. I have some in Memphis, white and pretty as can be; it has been there for months. It was left on commission, or they were to pay me 20c. and sell for what they pleased. I have known them to offer it for the same, and still it is "no go;" this town does not use more than 200 lbs. in a year, even at 12½ cts. for extracted, and 16⅔ for sections. "I just as soon have molasses"—they say. G. W. GATES.

Bartlett, Tenn., Dec. 1st, 1877.

Your market will improve, if you keep it supplied with nice honey. As soon as everybody learns where it can be found any time it is wanted, it will go off faster than you think. I would advise you to try the larger cities near you, if you have more than you can sell at home for 25c.

Why don't you groove the top bar of frames to hold fdn.? I think it could be done, and the fdn. fastened in with melted paraffine. Why do you need ten frames in the lower story in summer, if you take out the outside ones for winter? We have placed our hives all in a row, and packed in chaff, for winter, as usual. Don't think we loose many bees in so doing. The operation so changes the appearance of the apiary, that the bees readily find their own hives.

K. M. BARBOUR, Alamo, Mich., Nov. 26th, 1877.

We do groove the top bars to our frames to hold the comb guides, and if you choose to take out the comb guide you will find that the fdn. will slip in nicely. *We* prefer however, to fasten them to the comb guide in the manner given in our circular. Perhaps we shall not need more than 7 brood combs in the lower story at all, if we use the division boards for winter, and frames of section boxes in the summer time. I am well aware that bees have been moved, in the way you mention without loss, but at other times, if a warm day comes soon after, they will go back to their old stands, get into the wrong hives, and make "no end of trouble."

OLD BEES, WEIGHING HIVES, &C.

I tried an experiment last winter on wintering old bees that were queenless. Old bees will certainly winter and make good swarms in the spring, if kept healthy. My bees have built thick combs (not deep cells) in Aug., and I have thought it owing to the kind of honey gathered, but I now think it the cool nights; it being cool they can't work the wax out thin. Am I not correct?

How about weighing hives in fall when put in to the cellar, without brood, and again in the spring when heavy with brood, and telling how much they have consumed in wintering?

LEWIS KELLEY.

Ionia, Mich., Nov. 27th, 1877.

You are right friend K., though I had hardly thought of it before. We might say a colony had consumed only 10 lbs. were we to trust entirely to the steelyards, but if they had 10 lbs. of brood at the last weighing, it would in reality alter the statement very materially. I know from experience, that bees may starve, when their hive feels quite heavy, in the spring. My experience with old bees has been the same as yours.

EXTRACTING THICK HONEY.

In extracting from my surplus combs, I could not get all the honey out, it being very thick on account of the cold weather. Will it injure the combs to put them away with a little loose honey in them? I cannot get it out without breaking some of the combs.

H. CHRISTIE.

Oxford Mills, Canada, Nov. 12th, 1877.

Had you kept the combs in a warm room, until they were warmed through to a summer temperature, you could have taken it as nearly out as in summer; but I would, if possible, leave the combs in an upper story until the bees get them clean and dry. The honey will do no harm more than to dry down hard on the combs, and possibly attract mice and insects.

TRANSFERRING: WHAT A WOMAN DID.

I sent to you in Aug. for a sample copy. It was promptly received, and after looking it over I set out for friend Butler's. I came away the possessor of his "crack" swarm of Italians, and in 6 weeks I took off 24 sections of honey averaging one and one half lbs. each. The copy was accompanied by the extra sheet containing the A B C, of Bee Culture and directions for transferring. My "*cara sposa*" came home from a business trip one day, and asked me if I could transfer bees. I looked him squarely in the face and said promptly, "Yes sir." I had never done it nor seen it done, nor had he, but we were in for it, for he had engaged to transfer 5 swarms. We did the work, and earned $20. 00, in two days. We have a lot more to transfer in the spring. The others were done Sept. 24th, *successfully*. Bees can be transferred at any warm season without risk if honey is plenty, either in store or in the fields.

MRS. M. A. W. B.

P. S.—For 4 of the colonies transferred we received 4 other colonies of black bees, valued here at from $5.00 to $8.00.

I am very well aware, my friend, that transferring *can* be done at any season if it is warm, providing the one who undertakes it will be prudent and careful; if all our friends who ask qustions in regard to the work, had a woman to help them, or rather *such* a woman as you seem to be, I should have less scruples in advising that it be undertaken at any time. I congratulate you, but beg to claim a little credit for the very full instructions I gave in our last year's price list.

COMBS PARTIALLY FILLED WITH UNSEALED HONEY.

When you pack your bees in chaff, the combs that are taken away will sometimes have the honey working out in drops all over the comb. Is it best to put them back?

LEVI FAYLOR.

Suffield, O., Nov. 20th, 1877.

We have been somewhat troubled in the way you mention, but we set such combs back in an upper story, or outside of the division boards of small colonies, until the bees carry out the unsealed honey, and then they are all right. We have found the division boards very convenient indeed, in getting the bees to put their stores all in a few well filled combs, instead of having them scattered through a dozen or more. Until the division boards were put in, we could not make them carry the honey from the outside combs up around the cluster.

The fdn. I received from you last Sept. worked like a charm. I put a few frames in some young swarms and in a few days they drew it all out and had a perfect comb. I tell you it made my eyes "bung out" when I saw such nice work.

NATHAN HUTCHES.

Westerville O., Dec. 8th, 1877.

I had 25 stocks in the spring and took 1000 lbs. comb honey in 2 lb. frames, besides 200 or 300 lbs. of extracted. I increased to 50 stocks which I am wintering on from 5 to 8 frames, according to strength of colony. I use chaff cushions over them, division boards and mats on the sides. I winter on summer stand. Have tried a cellar and bee house.

J. B. HAINS, Bedford, O., Dec. 3d, 1877.

MAKING HIVES AND SECTIONS: FLAX CHAFF, &C.

The hive has just come all right: the freight was $1,90. My hive of my own make will just fit on as nicely as you could wish. I made a plane to cut the bevel on the top edge. I make sections out of 2 inch plank, cut grooves first, then saw off the right thickness. How would flax chaff do for packing? We have tons of it, having two flax mills.

B. F. PRATT, Dixon, Ill., Dec. 7th, 1877.

Thank you friend P., for the idea of using a plane made so as to cut the shoulders and bevels on the hives; where hives are made by hand, the plan will I think answer excellently. The only objection to grooving the plank before the sections are sawed off, is that you can rip off but one little piece at a time, and then all these little pieces are to be bundled up and counted, if they are to be made for sale. This bundling and counting really takes more time than it does to make them by the plan we have given.

A neighbor is trying the flax chaff; I presume it will answer, but fear it may not absorb dampness like wheat and oat chaff.

THICKER SECTION BOXES, &C.

I commenced the season with 74 colonies, 40 in L. hive and 34 in box hive. I transferred them from box to L. frame, increased to 94 and had 1200 lbs. comb honey and 3300 lbs. extracted as surplus. Have sold nearly all as follows, at wholesale. Comb honey at 20c. and extracted at an average of about 13½c; some at 12½. Comb honey all in section boxes. Do you not think that if the separators are used it would be well to have the section boxes ¼ to ½ inches wider, and so avoid the *lean* appearance of the combs? Do you intend to keep fdn. drone size for use in section boxes next season? If I succeed as well in wintering this winter, as last, I shall want 100 lbs. fdn. next season. I winter in cellars, with quilts over frames, entrance small, temperature from 40° to 45°, and ventilate by a 4 inch tube conecting with sitting room stove. A. B. CHENEY.

Sparta Center, Mich., Dec. 3d, 1877.

We shall very soon be prepared to furnish drone fdn. thin enough, we opine, to suit anybody; but I am not at all certain that the usual worker size will not be preferred.

The matter of thicker section boxes, is one that has been much experimented on, and if we try them much thicker than 2 inches, there is a liability of having two thin combs instead of one thick one. A sheet of fdn. it is true, is generally a remedy, but for all that, they will sometimes start a bit of comb at one side, and this will result in leaking and daubing, when the sections are removed from the hive. Again; it has been pretty well demonstrated that a 1 lb. section sells for a better price than a larger one. Almost all kinds of groceries are now sold in lb. packages. If we should make our 4¼x4¼ section thicker than 2 inches, it would weigh more than a lb. If we make them much smaller than 4¼ square, we shall arive at a point where the bees object to such small work. Taking all these matters into consideration, I think 2 inches about the right width where separators are used; if these are dispensed with, 1¾ or 1⅞ will do very well.

FDN. FOR COMB HONEY.

In reading the article on page 317, Dec. No, on comb fdn. it occurred to me that *I* had used fdn. in surplus boxes this year. I filled 32 frames, 5x6 inches with fdn. and empty comb, over ¾ being fdn. The fdn. was put in full size, except a small space at the sides and bottom. When I read the report of the National Convention, "Thinks I to myself," wonder if *my* customers got any "fish bone" in their throats; so I asked them how they liked the honey got of me; "delicious," "splendid," were among the answers given.

"Hav'nt you *any* fault to find with it?"

"Yes, a big one; there wasn't enough of it, I wish I had more of it."

"Did you see any difference in the comb of that I sold you?"

"No, why, was there any?"

None of our customers seeming to get any of the "fish bones," we, at home, tho't we'd cut into a comb and see if *we* could find any of it, knowing it was there. As the knife reached the center of the comb, we noticed a slight resistance more than the balance of the comb gave, but could discover no difference in eating it. At the top was a little "ridge pole" where we had run wax along to fasten it. We shall use it (fdn) in preference to natural comb here-after. I began last spring with 6 light stocks and 3 nuclei; increased to 20, and got 647 lbs. honey; 332 of comb and 315 extracted. My bees are packed away for the winter in a sand cave on the banks of "the Father of Waters" where I have been "bee-ing it" the past season. WILL, M. KELLOGG.

Oneida, Ills., Dec. 11th, 1877.

I am a novice in bee culture. Began last spring, and have at present only 8 stands of "blacks" but wish to increase the number to *several hundred pure Italians* in the course of time. I am making preparation to establish a vineyard, and apiary on the border of a lake about 5 miles from my home. The place is an excellent one for bees, as the lake is very large and interspersed with several varieties of willow, cypress, honeysuckle, lily &c, &c. Hundreds of bee-trees are to be found, and always appear to be in a thriving condition, and hence I have decided to locate a large apiary at that point. R. H. LAWSON.

Kingston, La., Sept. 29th, 1877.

HONEY CANDYING IN THE CELLS.

I am but a beginner at bee-keeping; I wintered 3 colonies last winter, two of them in Am., hives; transferred them in apple blossom time, and made 3 of them, in Simplicities. I bought one truant swarm on a tree, 20 feet from the ground, and hived them nicely. With my increase I have 9 to winter, 4 of which are Italianized. I bought a second-hand foot-power saw and made a lot of your section boxes 4¼ square which just suit me, and every one I've shown them to. Honey season here has been very poor. The 25th of July I took 80 lbs. box honey from 2 hives. It was very dark and strong; much of it was just grained sugar. Some of it would grain as fast as the bees put it in. Cells in new comb were filled ½ full of solid sugar. Do raspberries produce such honey as this, or is it the honey dew? How shall we account for it? Our bees made no honey to speak of after July, I had to put back 35 lbs. box honey in section frames, and fed some sugar to my latest swarms. In making quilts and cutting sheets of duck to put over the frames, I have been troubled by their shrinking and becoming too small. I shall wet the cloth, in future, before I cut it, through I belive I've never seen it recommended.

Why not paint hives 3 colors, say red white and blue, instead of using the pieces of paper or cloth of different colors to aid young queens in finding their own hive? As I have not yet painted my hives, I would like your opinion on this in Jan. No.

W. D. HINDS, Townsend, Mass., Dec. 7th, '77.

As raspberry honey is very fine, I can not think your grained honey was from that source. We would be glad of a sample, if you have any left. I would incline to think your bees were stealing sugar somewhere.

If hives are painted dark colors, the combs are liable to be melted down in summer, and we have painted such hives, white, just because they would become so hot the bees could not stay in them. After being made white, they give no farther trouble. If, after placing the hives 6 feet apart, you find the young queens get lost, I would try turning the entrances different ways, or making them conspicuous by some temporary device, such as a green bush, or the colored papers mentioned, rather than make them permanently odd looking, and without uniformity.

I am not much of a bee-keeper having but 7 colonies, 6 of which are good swarms packed up nicely on their summer stands, with chaff cushions &c. When put in their little beds for their long winter's nap, the lightest weighed 26 lbs, and the heaviest 41. This included only bees and honey, for I deducted even for frames and comb, One small swarm, I am trying to winter in the cellar; this swarm I got the last of Oct. While passing through a piece of timber, I came across a tree from which they had been cut, and noticed they were hybrids. I soon found the queen, which proved to be very large and seemingly pure Italian; and while I held her in my hand, I thought, "what a pity to let such a beauty perish, when I may possibly save her," so I procured a small box, put the bees in and started for home. I happened to have a small hive containing 3 frames, and perhaps 2 lbs. of honey, and into this I put my half starved little strangers. I am now feeding them in the cellar, and up to yesterday they were doing well.

J. W. KEENAN, Bloomington, Ills. Dec. 7th, '77.

I love bee-keeping; I am delighted with my poultry and Berkshire pigs, but like my bees best; I am wintering 39 stocks on summer stands. My best stock made 100 lbs. comb honey from July 15th, to Oct. 13th. I am well pleased with the fdn. for brood chambers, and above all am I delighted with the section boxes. Shall use them altogether next season.

M. M. STOVER, Table Rock, Neb., Dec. 7th, '77.

Our Homes.

Taken from concluding pages of the A B C of Bee Culture.

"It is customary," said I to my wife, "to have several leaves in the back of every book, with nothing on them; two or more leaves, of blank paper. Now it is almost as easy, to have something useful printed on these leaves, as to have them blank. Why shall we not use them?"

"But my husband, your book will look badly; just think of having the reading matter reach the cover. Will it not look strange and singular."

"Does it look strange and singular to see advertisements on these concluding pages, in close contact with the reading matter?"

"Well no, I do not know that it does, but that you know is different."

It *is* "different" my friends and I presume more than one of you have noticed the broad difference between the matter contained in the book, and the character of the advertisements contained in these last pages. I beg pardon for this little bit of fault finding, and will try to remember that I am only responsible for the last pages of *my* book, and not for those of other people's.

Now then, with the young bee-keepers, with the boys and girls, and perhaps also with the men and women, who have read my A B C, book thus far, and all who feel they are young in the art of keeping bees, I would have a little friendly talk. I wish you to let me feel as if perfectly well acquainted; so much so that I might come in without knocking, or any introduction, and talk about home matters, *your* bees and bee-hives, or any thing else, wherein my experience might enable me to help you. I can almost imagine, already, that some bright youngster who has been eyeing me keenly and curiously, thinks, if he does not say it outright.

"Haint you got something to sell, Mr.?"

"No my boy, I have nothing to sell; at least, not to day. I keep things to sell, when at home, but now I am making you a visit, and what I wish to tell you about, is given away, without money, and without price."

"Ain't it a Chromo?"

"No, it isn't a Chromo. Come with me, and you shall see. Isn't that funny? 'Come with me and you shall see.' Tell sister to come, and if all the rest will come too, we shall be *very* glad to have them. Have you a hoe? Well, bring that, and have sister bring her little broom. We are going to build a little village. We will have streets and houses in our village, and we will have folks live there too. Oh such folks! for they not only work hard all day, but they come pretty near working all night also."

"Is it the bees?"

"You have guessed it exactly, 'Sis,' it is the bees, and their hives are to be the houses."

"But they will sting."

"Not if we get acquainted. How did you get acquainted with me?"

"We 'talked.'"

"That is the idea exactly; we are to talk with the bees, and get acquainted."

"Bees can't talk?"

"Oh, but bees *can* talk. They can talk in their way just as your old Rover talks to you, and just as the hens and chickens do. It is true, they do not talk with their mouths as we do, but for all that, they talk, and very plainly too, as I think we shall see. When Rover is glad to see you, what does he say?"

"He says 'Bow, wow, wow, wow,' and wags his tail."

"Very good. Now, when you are gathering the eggs, and you find one of the hens that sticks to the nest and won't get off, what does she say when you try to get her off?"

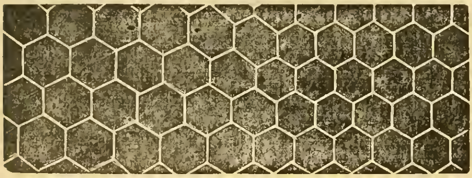
"I *know* what she says, but *I* can't say it. She says, 'cr-r-r-r, cr-r-r-r-r,' and she pecks.'"

"Well, you know exactly what she means do you not? Does she not say, as plainly as words could tell it, 'You go way off, and let me be, I *will* sit, if I want to. They are my eggs, for I laid 'em'?"

"Well, now the bees talk just as plainly as the hen and dog, but as you are not acquainted with them, I will go along and act as interpreter. That is, I will tell you what they say. As little folks are pretty easily frightened or discouraged, I think mamma had better fix some sort of a veil on your hats, until you get a little used to the business. Any sort of an old veil will do, or some new ones can be cheaply made, of a piece of tarletan. Now notice; if I go up to their hives and stand in front of them, they will buzz all round me, and pretty soon, if I do not move, they will begin to 'scold,' very much as the old hen did; and to me, it is just as plain, what they want. They want you to get away, so they can go on with their work. When you go up to the hives, always be careful to stand at one side of their line of travel, and then they will be much less likely to try to drive you away. Almost every hive has a particular 'path' through the air, and we are to watch and see where this path is, and let them have it, full width.

"Now boys, for business; pull down all the old sheds there may be around the bee hives, clear away all rubbish, and if the hives are set on any kind of benches, clear these all away, and set them right on the ground; or rather, raise them on 4 half bricks, laid down flat; if we are going to have a convenient village, we must have the houses on the ground, not up on stilts.

"We have not called upon papa yet, but now we shall have to ask him for a load of nice sawdust, and then we are ready for the little broom and hoe, to make the streets, and lanes and alleys of our city. It *may* be a little city sometime, if we keep at work as the bees do, and do not get discouraged. Now I expect you will disagree with me, when I tell you how we are to lay out the streets; for I am going to plan our city, just as the bees plan their rooms inside their houses. If you look at a piece of honey comb, you will see the cells are six sided, like this:

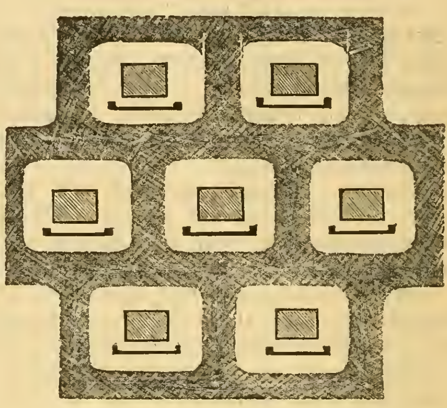


DRONE COMB. WORKER COMB.

"There are several reasons why the bees cannot have square rooms, as we do, and one of them is that the bees are round, and would not fit in square cells. A young bee I imagine would find himself quite uncomfortable, in a square cradle, and if the cells were made round, they would not fit up against each other, as they do now, without waste corners. So you see the bee makes his cell six sided to save room, labor and material. Now we wish our bee village made six sided for the same reason, and to save travel, in working among them. If you have only seven hives, we will make them stand about like this; one in the center, and six around it.

"You see by the drawing, how the hives are to be placed, and where the sawdust is to be spread for the paths. On the south side of each hive, I have shown you the grape vine trellis you will probably have after a while. You can just see the tops of the posts, and the top strips.

"As we must have everything exact in laying out a city, we will cut a stick just six feet long, and arrange all the hives so they are just six feet from the center one, and from each other. Make a nice walk of sawdust from the hives to the house, that we may not get mamma's floor muddy when we run back and forth; now make a walk between and around all the hives, and bank sawdust up nicely all round them, to keep them warm, and to keep the grass and weeds from growing in the way before their doors. If you will fix their doorways all nice and clean, they will get just as proud of their homes, as the old hen does of her chickens; you see if they do not.



HEXAGONAL APIARY OF 7 HIVES.

"If the hives do not stand just as you want them, or pretty nearly so, when you commence, you must move them into place a little at a time each day, or you will make serious trouble. If you move a bee's hive, even a few feet, he is as much lost as you would be, if your own house were moved a mile, for he always comes home to the exact spot from which he started out. If you commence your improvements in the spring, before the bees begin to fly, you can set the hives anywhere you choose, without making any trouble, but you cannot do this in the summer time while they are flying. When the sawdust is all fixed, sister is to keep the paths all swept neatly with her little broom, and all hands are to contribute in keeping everything neat and tidy."

"But we have not heard the bees 'talk' yet."

"Haven't you? Well, just go up to a hive on the back side, and rap gently, just as if you wished to come in."

"They say Buzz-z-z-z-z."

"Well, what do you suppose that means?"

"I guess it means, 'Go right away, and let us be.'"

"Very good; after we know them a little better, I think we shall be able to understand almost all they say, or at least all they wish to say. Now there is something funny about bees' talking, for they do it with their wings, and not with their mouths.

"I think each one of you children may choose which hive he will have, and then we can see who will get most honey from his or her hive. We have a little blue eyed girl at our home, and she has a hive that contains the prettiest queen, the prettiest and gentlest bees, and they have made the nicest little cakes of honey, of any hive in our whole apiary, and there are nearly a hundred in all. If you will look at our apiary on the back cover of this book, you will see her hive right in front of the door of the honey house. She has a little broom, and sweeps the sawdust up around the hives, and stamps it down with her little foot, and she isn't afraid of the bees, one particle. She has never been stung at all, while at work among them. If you will turn over to the picture of the House Apiary, you will see where she and her sister Maud, have their play house. It is up stairs where the plants stand out by the window. You can see them both, standing on the steps, but the man who made the picture, did not try very hard, I guess, when he made their faces, for it does not look very much like them. They have never had any trouble with the bees in their play room, except one day when they had some very nice water-melon for tea, and the bees came to tea too, and liked the water-melon so well, that they went home and told the rest of the bees (don't you see bees can talk?) in the hive, about it, and so many of them came that the children came and asked me what they should do. You can see me in my camp chair down by the door of the house. You see I had a nice young queen that I wanted to have lay eggs, because I knew after she had commenced laying eggs, we should soon have a nice lot of young bees in the hive. Well, it was rather dark in the house where their hive was, so I took the comb with the bees on it, carried it out doors and sat down to look for the tiny white eggs.

"After the bees get acquainted with you, they will not scold and tell you to go away, but will light right on your hand or face, and sometimes they light right on my nose. I suppose it is because my nose is rather large, but it does not make me feel bad at all, if it *is* large, for I know that God made it so. When we come to die, I expect he will ask all about our lives, whether we have been good or bad, and whether we have talked bad and told lies, or stolen things, but I do not believe he will ever say one word about our noses.

"I almost forgot to tell you, that our 'Blue Eyes'—her name is Constance, and we call her 'Conny' for short,—always comes up to the shop to tell me when the bees are swarming. Some days when I am writing with my type writer, just as I am now, all at once somebody will say, 'Papa! bees is swam'in',' and I tell you I 'hustle,' for I do not want my nice queens to go off and get lost. When I get home, I usually find that my wife has hunted out the queen, and has got her in a cage. We tie the cage on the rake, with a green bush, and pretty soon the bees all cluster all round her. One Sunday I had to go off to teach Sabbath school, and I was afraid some of the bees would swarm, so I told Ernest (he is our boy, 14 years old), that I would give him a dollar for every swarm he would hive while I was gone. When I got home I found a 'great big swarm' had come out of Connie's hive, and he had hived it all just as nice as I could have done.

"Do you go to Sunday school?"

"I am too little, and it is too far."

"Do father and mother go?"

"*They* go to meeting."

"Does brother go?"

"I guess *he* don't think very much about it."

"Do any bad boys live around here?"

"O yes there is some that is 'awful' bad. They shoot guns on Sunday, and sometimes they steal our bee-hives in the night?"

"We would be really glad to have these boys become good and stop doing these wicked things, would we not?"

"But they won't never go to Sunday school."

"I know they are not very apt to go, but sometimes very wicked boys feel badly and are sorry, and if somebody would talk with them, and help them a little, sometimes they will make really good men. Perhaps nobody has been kind to them, and sometimes they have no kind father and mother to take care of them, as you and I have.

"Now I think it is just as nice to have a good Sabbath school, as it is to have a nice apiary, and I am not sure but that one helps the other. You go to school do you not?"

"Yes, and we have just the nicest school ma'am."

"Well that is *very* fortunate, for I am sure she will be glad to help you start a Sabbath school. You can talk to her about it, and get her to ask permission of the trustees to hold it in the school house every Sunday afternoon. If you can get the minister to come and help start it, it will be a very good plan, but if not, get the best man you know of, to come and ask God to help you all to go to work right. We must work in the Sunday school exactly as the bees do in the hive. We must work all together. Do you suppose the bees in the hives ever scold or get mad at each other? Sometimes their honey is all gone and they have to starve to death, but from what I have seen of their actions, I do not believe they ever blame each other, and say 'It was all your fault you might have worked better when honey was plenty, like *we* did.' On the contrary, they seem to work together just as your right hand works with your left. Did you ever have your right hand get mad at your other and strike it?

"Why no; one of my hands could not get mad at the other."

"Did you ever get mad and strike your brother?"

"Yes, but that is different."

"It is different, that is true; but why cannot you feel towards your own brother, just as you do toward your left hand? Do you not think we would all be so much happier? Don't you think our mothers would be pleased if we did that way? We would all stop finding fault, and what a happy world it would be?"

"But folks don't do that way. We can't always be good."

"Trute,rue ; we cannot always be good, but cannot we always keep trying?

"I guess we could, if God would wait a little sometimes when we are real ugly."

"Well I think he will, if we do the very best we can. Now it is almost time for me to go home, but I hope you will get your teacher, your parents, and everybody else, from the baby clear up to grandpa, and grandma, to help start that Sabbath school. God will take care of you all, and tell you what to do, if you only ask him, and the bad boys will all come too, after a while, if you are all kind and pleasant, just as I told you the bees were. You will need some of the Gospel Hymns to sing from, and you will need lesson papers, and some little cards, for the children who learn the Golden Texts, and some of the pretty Sunday school papers that are printed nowadays. Do you wonder where all these are to come from? Well if you ask God to send them, and keep working as the bees do, they will all come pretty soon. Do you ask how you shall work? Well I guess the first thing will be to be kind and pleasant to every one, and to ask them all to come and help the school along. God will tell you when you are working in the right way, by making you feel more happy and joyous, than you ever did before in life. You will like your bees better than you ever did before, the flowers will seem prettier, the grass greener, and all the world more beautiful, just because you have been trying to help the world to be good, instead of being altogether selfish. Whenever you help anybody to do right, you have helped God, and he always pays folks for doing such work, by making them very happy.

"There now I must go; remember the bees, do not let them starve, and oh, my friends do remember the Sabbath school, do not let it drop or dwindle down, but show God that, *you*, can be depended upon, even if it does storm and blow. He that is faithful in a few things, shall be made ruler over many."

I have several times found colonies of bees so nearly dead from starvation that a great part of them were down on the bottom of the hive, and so weak as to be but just able to move. When honey was given them, the first ones would take a good load, and just as soon as strength returned. they would hasten to feed the rest; they too would revive, and very soon all hands were as busy as they possibly could be, passing it round and helping the others, until all were ready to join in one grand jubilee of thankfulness for the timely succor. Can not we learn of them, two lessons; first, to spread everything that is good, freely and unselfishly, and then to unite in a joyous thanksgiving for the peace and plenty that we enjoy as a people.

GRAPE SUGAR, ETC.

AS I have been an experimental bee-keeper for the last 12 years, I take a good deal of interest in your paper and experiments. I am now trying some of the grape sugar, of which I have as high expectations as yourself. I have heard that the sugar is made of potatoes and is used in beer and wine. I have tasted coffee sugar which savored very much of it. The fact that grape sugar candies in the uncapped cells, is encouraging; the bees will eat it out as nicely as they will eat candy in the stick. I have seen no ill effect from it as yet.

My bees are on their summer stands, covered with a chaff box giving 4 inch space for chaff around the whole hive, both stories on. The box opens just where the two stories join, thus forming a cap of the upper half, which can be removed to get at the bees in winter, to pack and feed. If we leave them on all summer, the bees can be worked, as far as I can see, with ease, after lifting off the cover. We leave a 4 in. portico in front by shortening the chaff on that side. We crowd the bees on to 6 or 7 combs, with division boards, and if they need feeding, feed till they have enough. Now in the spring carefully build up the swarms by spreading the brood, and there will be no danger from chilling in the chaff if not over done. Shall probably run to comb honey next season, mostly. Shall use fdn. and, by the way, why not use the elm or other bark right in the water the plates are cooled in.? J. Butler's report is my report exactly, in regard to number of colonies, yield of honey, season, &c. except in regard to using fdn. in brood chamber, which I consider an acquisition.

Friend Root, guess your idea of conventions is about right. GEO. H. MACKEY.

Milan, Ohio, Dec. 15th, 1877.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles see our Twelfth Edition Circular and Price List found in Jan. No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C. Part First	$ 10
	Basswood trees for planting, for prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	“ “ waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees; 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 6 in. $1 50; 7 in. $1 75; 8 in 10 inch, $3,25; all filed, and set, and mailed free of postage.	2 00
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
1	Cages, wood and wire cloth, provisioned, see price list	05
12	“ “ “ per doz	50
	“ Larger size double above prices	
20	Candy for bees, can be fed at any season, per lb	15
	“ 1½ lbs. in Section box	20
	“ “ Eight lb. slab in L. frame	1 15
0	Cards, queen registering, per doz	06
0	“ “ “ per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	20
9	“ “ without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $25 to	100 00
20	Corners, metal, per 100	75
20	“ “ top only, per 100	1 00
15	“ “ bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
12	Duck, for feeding, and covering the frames —bees do not often bite it—per yard, (29 inches wide)	20
	Extractors, according to size of frame, $7 50 to 10 00	
	“ inside and gearing, including honey-gate	5 00
	“ Hoops to go around the top	50
	“ “ per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, pepper box style	10
25	The same, 6 qts, to be used in upper story	50
2	Files for small circular rip saws. new and valuable, 20c; per doz. by Express	2 25
2	“ 3 cornered, for cross-cut saws	10
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	“ Vol's IV and V, each	1 00
0	“ Vol. III, second-hand	2 00
0	“ first five neatly bound in one	6 00
6	“ “ “ unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives	1 00
	“ “ ½ doz	5 25
	“ “ ½ doz by Express	5 00
0	“ “ Curved point	1 15
	“ “ “ “ ½ doz	6 25
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	“ “ Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	“ Prepared objects for above, such	
0	as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	20
0	Photo of House Apiary and improvements	25
0	Queens, 50c to $6 00. See price list	
2	Rabbets. Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
.	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes showing the way in which the separators are used, suitable for any kind of hive, see cut, p. 8,	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	“ Catnip, good seed, per oz. 20c; per lb.	2 00
0	“ Chinese Mustard, per oz	15
18	“ Mellilot, or Sweet Clover, per lb	60
	“ Motherwort, per oz. 20c; per lb	3 00
18	“ Mignonette, per lb. (20c per oz)	1 50
	“ Simpson Honey Plant, per package	05
	“ “ “ “ per oz	50
18	“ Silver Hull Buckwheat, per lb	10
	“ “ “ “ peck by Express	75
18	“ Summer Rape. Sow in June and July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of duck to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
10	Smoker, Quinby's (to Canada 15c extra)	1 50
5	“ Doolittle's	25
25	“ Bingham's $1 25; 1 60;	2 00
25	“ OUR OWN, see illustration in price list	75
2	Tacks, galvanized, per paper	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of tarletan (almost as good)	50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned per square foot	15
2	Wire cloth, for queen cages	12
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, 14 mesh to the inch, per square foot	07

All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.

CLUBBING LIST.

We will send GLEANINGS—

With The American Bee Journal	($2 00)	$2 50
“ The Bee-Keeper's Magazine	(1 50)	2 00
“ Both the above Bee Journals of America		4 00
“ British Bee Journal	($2 00)	2 50
“ All Three		5 50
“ American Agriculturist	($1 00)	2 25
“ Prairie Farmer	(2 15)	2 90
“ Rural New Yorker	(2 50)	3 25
“ Scientific American	(3 20)	3 90
“ Fruit Recorder and Cottage Gardener	(1 00)	1 75

[*Above rates include all Postage.*]

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Names of Premium Articles. *Any of them sent post-paid on rec'pt of price.*	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	3
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

ITALIAN QUEENS.

All bred from imported mothers of my own importations. Dollar queens, $1,00. Tested queens before June 1st, $3,00; after, $2,50. Full colonies of Italians from $7,00 to $10,00. Two frame nucleus with tested queen, $5,00. Comb Foundation, Bee-Keepers' supplies., &c.

2-7d PAUL L. VIALLON, Bayou Goula, La.

LANE'S SEED CATALOGUE.

My annual catalogue (a complete garden and floral guide—90 pages) of choice Northern grown seeds—1000 varieties, bulbs, garden and apiarian implements, supplies, agricultural books, bees, queens, &c., &c., is *now* ready—sent postpaid on application.

Address, C. F. LANE, N. W. Apiary &
2tf Seed Warehouse, Koshkonong, Wis.

E. W. HALE'S
Price List of Bees & Queens for 1878.

1 Colony Italian Bees with tested queen (before July 10th) $14 00; (after July 10th)	$11 00
1 Colony Italian Bees with untested queen after July 10th	9 50
1 Tested Queen	2 50
1 Untested "	1 00

A discount of 10 per cent on all orders for queens of $10,00 or more. All queens raised from imported mothers. I have made arrangements to Italianize all the black bees within 2 miles of my apiary, and I think *all* my queens will be *purely* mated; all queens will be shipped in rotation, and I desire parties ordering queens, to inform me whether they wish the money returned if the order can not be filled at once.

2-8d Address, E. W. HALE, Wirt C. H., West Va.

Hives Cheap.

Material ready to nail for standard Langstroth hives. Portico, 10 frames, (beveled top bar) bottom board and cap, in prices ranging from 75c to $1,00 each, according to quantity wanted. Sample hive $1,50. Our *favorite* the "Modest" at same prices.

We are prepared to beat the world on Honey and Section Boxes.

Harbison section, 5 to 10 M. per M	$6 50
" " Less than 5 M, per M	7 50
" " " " 1 "	8 50
Dovetailed sections, any size from 4¼x4¼ to 5x6, 5 to 10 M, per M	8 00
" " Less than 5, per M	8 50
" " " " 1 "	9 00

Circulars for 1878 will soon be ready—Send for one.

J. OATMAN & SONS,
1tfd Dundee, Kane Co., Ills.

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Each Number contains THIRTY-TWO PAGES of reading, many fine Wood Cut Illustrations, and one COLORED PLATE. A beautiful Garden Magazine, printed on elegant paper, and full of information. In English and German. Price, $1.25 a year: Five copies $5.00.

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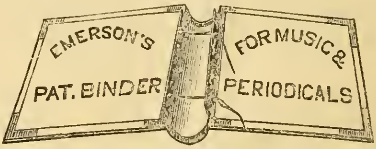

You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years) gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

FREE! FREE! FREE!

We will send a sample copy of the **Bee-Keeper's Magazine,** *post-paid*, to any person in any way interested in **Bees** or their **Products,** or in the apparatus so successfully used in modern management. Just send your name and address to

A. J. KING & CO.,
8tf **61 Hudson St., New York.**

WANTED:

A thoroughly competent man to take charge of an apiary. (A recommendation from this paper will be received). One with a small capital will be taken as partner. Cotton lands for rent.

DR. F. G. McGAVOCK,
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WANTED:

A small Portable Engine and Boiler in exchange for bees. HENRY PALMER, Hart, Mich.

COMB FOUNDATION,
45 TO 55 CENTS PER POUND.
1-2 C. R. CARLIN, Shreveport, La.

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Langstroth Bee Hives cut ready to nail including 10 frames and 6 honey boxes or two story hives of 20 or 21 frames. Price 80c to $1.50 each according to quantity and quality.

Address R. R. MURPHY,
12-2 Garden Plain, or Fulton, Whiteside Co., Ill.

ITALIAN BEES *and* FANCY POULTRY.

For Italian Bees, full colonies or queens, also Fancy Poultry, including the leading varieties of Land and Water Fowls, Address JNO. R. LANDES,
2-3 Albion, Ashland Co., Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. FEBRUARY 1, 1878. No. 2.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more,* 60c. *each. Single Number* **10c.**

MY EXPERIENCE. NO. 2.

MOVING BEES.

I SHOULD have left the bees until spring, but they had no protection, and I thought it best to have them at home under my own care. To prepare them for moving, we spread a piece of cloth upon a platform of boards, set the mouth of the hive upon the cloth, turned the edges of the cloth up against the outside of the hive, and fastened them there by tacking on thin strips of wood. About 6 inches of straw was placed in the sleigh bottom, the hives placed upon it, and straw was packed between the hives, and all round them, to keep them in place. They were moved 7 miles and came all right.

WINTERING.

Before going after my bees, I built a long, large box. When I arrived at home, I set the hives into it side by side, three or four inches apart, and packed straw all round, and between them. The boards, on the side of the box where the entrances were placed, were raised four inches from the bottom, to make an entrance. Three blocks, 4 inches thick, were laid in the bottom of the box, and a strip of board laid upon them, which prevented the straw from coming down over the entrances; this left an entrance, 4 inches wide, directly to the entrances of the hives. I took the plugs out of the tops of the hives, covered the holes with wire cloth, then covered the hives on top with a foot of straw, and put on boards to keep out the water.

MAKING HIVES.

"Once upon a time," when I was a "canvassing agent," I stopped at the house of a friend, who kept bees. It was swarming time, and he had neglected to have his hives ready. He worked hard every day, from daylight until dark, and yet the bees were gaining on him all the time. Some swarms had to be united, and some put back and the queen cells cut out for want of hives. He begged so hard of me to stay and help him make hives, that I finally consented to stay one day. Having seen the folly of not having hives in readiness, I made mine in the winter. I made, by hand, just such a hive as I wanted, took it to a planing mill, and had the lumber dressed and sawed up all ready to nail together. The hives were painted white. Before the last coat was dry, they were marbleized by holding a lighted candle under the freshly painted surface, and moving it rapidly to and fro. My wife did this part of the work, and I must say she produced some very good imitations of variegated marble, as well as some very "fanciful" ones. The hives being all alike, they could be used interchangeably, thereby facilitating many of the operations of the apiary. The caps were painted different colors, and each cap always used at the same stand. And while I am talking about hives, let me advise you not to choose a complicated one. These complex affairs, with their hinges, doors, ventilators, moth traps, &c, are very nice for patent right men to show off and sell to some one who knows nothing about bees; but once get the bees into them, and these fine "fixings" will prove to be a nuisance in more ways than one. W. Z. HUTCHINSON.

Rogersville, Mich.,

Your plan of wintering, friend H., did very well for hives just brought home, but if you were to take them out of your own yard and put them close together, they would be very apt to get lost and mixed up. Many losses of colonies, have been reported, under such treatment. Better protect each one on its permanent summer stand.

* * *

APIS DORSATA,

OR THE HONEY BEE OF BORNEO, CEYLON AND JAVA.

I HAD a letter a few days since from Mr. H. Alley. A friend of his received a Cyprian queen in Nov. He says the queen is dead but the workers are remarkably handsome. My interest now is all centered in *Apis Dorsata* Jan. No. of *Am. B. J.* will contain a long article on this bee. The fact that they build in the open air is not against them, for they also build in hollow trees. I have known just such cases here, using the under side of dense evergreens. This would naturally occur more frequently in a mild climate. I desire to follow this matter up, and to get all the aid I can in obtaining information. Several of my friends are helping me in this matter through correspondence. EHRICK PARMLY.

New York, Dec. 25th, 1877,

It has always been my impression, that the *Apis Dorsata*, belonged to the family of wild bees, that do not store any great amount of honey, other than they require for their own use. The natives, it is true, run great risks to get at their stores, but they are in the habit of eating both brood and honey, which latter I fear would hardly be relished by our American friends who complain of the least excess of beeswax in their honey comb. However, as I have a great fancy for new things too, I will pay $100.00 for a colony of *Apis Dorsata*, sent to me in any shape from which I can get them built up safely. The *A. B. J.*, for Jan., has a very interesting account of the way the natives get the honey. As a great many of our readers take both Journals, it will hardly be best for us to give a reprint of it. I would suggest to beginners, that they had better be satisfied at present, with the Italians. The Cyprian bee for which so much was claimed a few years ago, now seems to be little, if any different from the ordinary Italian. The disposition to ransack this entire little earth of ours, for everything that it contains in our line of industry, is I think commendable, when one has the means to push such investigations. Columbus would never have discovered America, had he not burned to know more of this ball on which we live. We bee-keepers cannot well spare time to make polar explorations, but we certainly can scrape up all the different varieties of honey bees, no matter if we have to go to China and the Indian ocean to get them, can we not, eh?

BOTANY OF HONEY PLANTS.

I ALWAYS look GLEANINGS over, though I am not a bee man. I ought to give more attention to bee plants, and think I shall. When you want any plants named send direct to me. They generally get to me before named. This will save one transfer for brother Cook. I am surprised at the growth of bee culture within my recollection. There must be something in it, or there would not be so many Journals devoted entirely to the subject.

M. J. BEAL, Lansing, Mich., Jan. 3d, '78.

We are very thankful indeed to Prof. Beal for his kind offer of his services in naming plants. We would further suggest that our friends mail their specimens direct to Prof. Beal, Agricultural College, Lansing Mich., with the request that he send them, with his reply, to us, or to either of the other Journals as may be thought best. We have now an engraver of our own, and will have the best honey plants, illustrated. We will cheerfully provide the Prof., with postage stamps, in reserve, and boxes or envelopes adressed to us, so that we may not trespass too much on his good nature. Now friends please remember; send all your plants and specimens direct to him, and he will mail them, with his answer, to us.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

I DO not know but we shall really be compelled to keep a standing note of warning in this department, to prevent Mitchell and his clique, from obtaining money by fraudulent and barefaced claims, presented to almost every one who is so uninformed that there seems a prospect of their getting anything. For some time past, we have answered inquirers, by the simple statement that Mitchell is the ring leader of all the swindlers in the bee-business, and that he has been shown up almost incessantly for the past four years. Of late, it takes too many postals. The following letters tell their own story. His claims are, if possible, more ridiculous than were Gillespie's on all hives used two stories high.

As you solicit aid in exposing humbugs and swindles, and, as I judge some parties here, and elsewhere have been swindled, I write to ascertain. You say to your inquiring friends "*Nothing is patented in the shape of hives or implements, that we advertise.*"

N. C. Mitchell of Indianapolis, had an agent through here selling the right to use division boards, and the sheet over the frames, claiming a patent on it. I see you use the division board and tell others how to make them, and also the sheet. I have told parties that I could use the division board without paying $5.00 for a farm right, and they replied that I would get into trouble if I did. Will I? Send for their circular, and see for yourself whether or not they are swindlers. However, I will enclose a postal for you to inform me immediately what you know of them, and whether the division board is patented or not.

A. Lewis, Taylorville, Ills, want's a specimen copy of GLEANINGS. He has an apiary of more than 100 hives, and paid $5.00 for the "Mitchell patent."

WM. G. BROWN.

Breckenridge, Ills., Dec. 31st, 1877.

Our friends have kindly sent us, I think, all the circulars Mitchell has from time to time published. If he, or they, have any patent covering division boards, lined with cloth or otherwise, the sheets of duck over the frames or anything else of like nature, I beg as a favor, that he prosecute me, as I am perhaps the greatest infringer. If he calls on you and threatens, show him this, and if that does not do, show him the door, and assure him that you consider it a Christian duty, to assist in driving him back to an honest life, if the thing be possible. Whenever you pay them money, to get rid of them, you encourage others to, perhaps, leave an honorable and steady business, to engage in this species of highway robbery. You have no *right* to give such people money, even if you should find it the easiest way of getting rid of them.

QUEEN CELLS,

HOW TO GET THEM FOR THE LAMP NURSERY, &C.

IF a comb of larvæ, *just hatched*, is placed in a queenless colony, in how many days will the queen and worker cells be sealed, so that it can be placed in a lamp nursery? Which will be sealed first, the queen or worker cells? I suppose the worker brood must be sealed up, when it is removed, as well as queen cells.

Would you keep one colony queenless all the season, and keep them rearing queens? If not, how many "batches" of queen cells would you have them build, before you would allow them to have a queen?

Will "lamp nursery" appear in A B C of bee culture before it is time to rear queens?

When you introduce a newly hatched queen to a nucleus, do you usually let her crawl in at the entrance?

W. Z. HUTCHINSON.

Rogersville, Mich., Jan. 3d, 1878.

I confess I can not tell exactly when all the queen cells will be sealed over; but as the worker brood is all capped inside of 7 days after the egg is laid, and the egg does not appear as a minute larvæ until the third day, I think we shall find all the queen cells sealed over as soon as four days from the time the larvæ was given them. If young bees are added to a colony from time to time, you can keep them building queen cells all the season. As some particular colonies seem to have a mania for starting a great number of cells, I think it would be a very good idea to keep them at it as long as they will do it well. All the worker larvæ should be sealed over before the frame is put into the lamp nursery, or they will crawl out of their cells in a starving condition. I have had just as good success in letting just hatched queens in at the entrance, and when you are in a hurry, it is quite a saving of the time occupied in opening the hives. If we could only find a sure way of introducing these young queens under all circumstances, and to all colonies, weak or strong, the lamp nursery would be one of our greatest modern improvements. With nothing but young bees, or during a good yield of honey, there is seldom a failure, but when a drouth occurs, and robbers abound, the young queen is quite apt to get led out as an intruder, by some over zealous inmate of the hive. They do not seem to have any ill will to them, for I have often picked them up at the entrance and put them back again, and had them accepted and fertilized. If we could furnish a pint of young bees with each newly hatched queen, there would be no trouble at all. Can any profitable way of doing this be devised?

SHADING HIVES, ENEMIES OF BEES, &c.

TOADS, BEE MARTINS, AND BEE HAWKS.

WHILE you and your Northern friends are constantly discussing the best plan for keeping your bees warm through the winter, we are in doubt, whether or not we should take some pains to keep our bees cool. We had a killing frost on the 12th of November, which completely cleaned up all bee pasturage for the present; but we frequently have pleasant sunny days when the bees, in hives exposed to the sun, come out in considerable force, while those in hives that are shaded and kept cool, are quiet. Now the question is, will not those in the shaded hives winter better and consume less than those that are flying out every sunny day? In considering this question, you will bear in mind that our sunny days are often followed by cool evenings, and that bees that do not return home before sunset stand a good chance to become chilled and not get home at all.

We notice that some of your friends still plead for the toads. Well, there is no doubt that toads are useful in the farm and garden, but the way they do eat bees is a caution; and I say that suitable stands do not seem to prevent them, for every poor fellow that comes in, "weary and honey laden" and misses the alighting board falls into a toad's mouth. Now my plan is, to look for them occasionally around the hives, about dusk, gather them up, and take them to to the vegetable garden and release them. There they can feed upon flies and worms to their heart's content, and without doing any damage.

We also notice a plea for the martins, and so far as the bird described by your correspondent, is concerned, we agree with him. They are birds of passage, go in droves, live and rear their young in houses or boxes prepared for them, during summer, and emigrate southward at the approach of autumn. The male bird is black and the female dusky gray. They subsist principally on insects but we have never known them to trouble bees. But there is another kind, called *Bee Martins*, that go in pairs, male and female, strongly resembling the female of the black martin in appearance, but entirely different in habits. They usually build their nests in tall trees, and live and die near where they are hatched and reared. You will seldom see more than two of these together or near each other. When you discover one of these chaps perched on the bough of a tree near your apiary, making an occasional dash into the air and returning again to his perch, you may feel assured that he is eating bees; and we would advise you to try your shot gun on him at once.

There is another customer that is more troublesome with us than either toads or martins. We do not remember his technical name, but he is very generally known as the *Musquito Hawk*. He is shaped much like a musquito, is about three inches in length, has four wings, and his body is greenish colored. They come in great numbers, late in the afternoon of a summer day, and, flying to and fro in the vicinity of the hives, catch the bees on the wing as they return from the fields. They are very expert in their line, and seldom miss their aim.

The best plan we have found for disposing of these fellows, is to organize an army of small boys for the purpose of destroying them. If you live near a school house or academy, you can, by an offer of a treat to honey or some such inducement, enlist the services of the whole school. Arm each boy with a whip, switch or brush broom, and place them in convenient positions for whipping down the *hawks*, as they pass. A boy that is expert with a bat in baseball, will get every one that passes within reach of him. In a few minutes you will notice that they fly higher and seem to avoid the boys, and if you will persevere in this warfare for a week they will entirely disappear. J. B. MITCHELL.

Hawkinsville, Ga., Dec. 28th, 1878.

Whether we shall shade our hives or not, is a question not easily decided. Some seasons there seems to be an advantage in shading them through the winter, while the next, the result seems to be exactly the reverse. We have always had two hives on the north side of our honey house, where the sun scarcely strikes them at all, and they have on an average, done full as well as those set elsewhere. The bees on the north side of the house apiary, have also done just as well as those on the south side. I have a few times, when the bees were gathering pollen briskly during a bright, sunny but cool day in the spring, found considerable numbers of pollen laden bees on the ground, chilled, on the north side, while those on the south, would be all safely in the hive. On one such occasion, I picked up several handfuls. If the next day proved a fine one, they all revived when the sun struck and warmed them, but if several cool days followed, they died. Notwithstanding this, we had full as good yields of honey from these same hives, as from any in the apiary. It is possible that a weak hive, would do better in the sun, but I am not quite sure of this. The colonies that are kept in the shade, are very strong, and a very strong colony will take care of themselves under almost any circumstances.

The idea of setting the school boys at work, is a novel one, indeed, and from what I know of school boys, I should not be surprised if the musquito hawks began to "scratch gravel" for "furrin parts" at the very outset of the engagement. Be careful that the boys do not form habits of *needless* cruelty to either insects or animals.

BUILDING COMBS UNDER THE HIVES.

I have 20 stands of bees in the old fashioned hive, and would like to put section boxes in the caps. Now, if you will suggest some plan to me, I will promise not to trouble again in that way. I know nothing about bees more than to hive them, and put on and take off boxes. For 3 or 4 weeks, during the honey season, all the fronts and part of the bottoms of my hives had at least a peck of bees on, and some built comb under the hive. I have been taking GLEANINGS for 3 months and intend to take it until I learn something about bees. I have been using boxes, but somehow, in hot weather, they stop working in them, and hang on the outside of the hive, idle. Can you tell me how I can alter or fix the caps of my old hives so that I can hang section boxes in them? J. D. WOOLF.

Delavan, Ills., Jan. 7th, 1878.

Well, I declare friend W.! I thought I had given pictures enough of section boxes, and the way to use them, so that no one need let their bees build combs under the hives for want of room inside. Hang a frame of sections in your L. hives by all means, and if your caps are not in shape to take a full frame, cover the top with a tier of the 3 frame cases, such as I described for box hive men, last month.

I commenced with 33 swarms last spring, and took 1650 lbs. of honey; 1600 lbs. comb, and 50 lbs. extracted. Owing to my lack of experience (as this was my second season with bees), and the secretion of honey being light, I did not get a full crop, but will try to do better another season. G. W. STANLEY.

Wyoming, N. Y., Jan. 7th, 1878.

DEPOSITORY OF Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

THE OTHER SIDE OF BEE CULTURE.

DID you ever! we have a really good long letter this time for Blasted Hopes, and it is from a pen no less able, than that of our old friend, Scientific. Listen:

Well, friend Novice, I begin to think Heddon's head is about level after all. The market for honey is over-stocked especially with extracted. Thurber and Co., who we thought would purchase any quantity have got more than they want, and our country villages are full of honey at low prices. Now suppose California, and the rest of the U. S. yields bountifully will there be any sale at all another year? I have sold about half of my crop, and the rest goes slowly at 12½ cts. I am setting my face in another direction, and bee-keeping will be only a secondary consideration, unless you study up some way to make the sale of honey remunerative.

Speaking of honey taking the place of sugar, I believe if honey were sold for 5 cts. per lb. people would prefer sugar, at present prices. Further-more, we have a species of stock that has no market value; we may infuse all the noted foreign blood and then offer an apiary of a hundred swarms for sale and they will go slowly at $5.00 per swarm. We think of offering our 110 swarms if they winter well, for $3.00 per swarm, with all fixtures thrown in. Yes, bee-keeping is such *nice* business for invalid gentlemen and sentimental ladies; all you have to do is to show admiring friends how the busy little workers roll in the greenbacks. It's all very nice and poetical on paper.

"How doth the busy little bee,
Improve each shining hour."

Now, our experience is, that the *apiarist* has to improve every shining hour, and *many hours* after "old shiney" has retired, and step around mighty lively too. Then, what about the stings? Oh! says the enthusiastic bee men, that's nothing! grin and bear it, it's the beauties of nature that you are to study! We can talk learnedly about the polished point of the sting and compare it to the bungling works of man as manifest in the point of a common needle, and speak of the great power of a tiny drop of poison, distilled from the sweet nectar, sipped from the fragrant virgin flower. Oh! who wouldn't be stung by an insect of such wonderful construction! Yes, a thousand times a day, and after getting a few pounds of sweets, find the products of your labor a drug upon the market; home market at that, with your pedler discouraged and trading old horses, and finally coming down with a malignant form of diptheria, with some danger of his non-recovery.

Now, friend Novice, I sat down to write for a couple of files, and will come to a close, for if I keep on, I verily believe you will think I have the blues. If this was written with blue ink I would call it a *blue letter*. And if bee-keepers havn't a *right* to have the blues, I don't know who has; ask Heddon.

J. H. MARTIN, Hartford, N. Y. Dec. 27th, '77.

Now friend M., if you have not forgotten all about your fit of the blues when this meets your eye, I shall conclude you are just the man we have long been looking for, to counteract the tendency of our A B C class to think bee culture is all sure and certain profit, and no hard work. I very much prefer that they shall start out with the idea that they *may* have to sell their honey for 5 or 10c. than that they will surely get 25, without any especial effort on their part. I will most cheerfully assist you in going into that other business that is "clean profit," with no losses, by taking all your bees, at $3.00 per colony and honey at 5c per lb. If they are in L. frames such as I use, I do not know but that I could take them all at $5.00. Are you sure, if I buy you out at these figures you will not set right to work and build up another apiary at a less expense and make money at it? If you will write as clear consistent and *practical* an article for this department every month, I will pay you as much for your articles, as I do your neighbor Doolittle for his.

If honey comes down to 5c, I think we can all swing our hats and give three rousing cheers for the success bee culture has made, in making honey as plenty as milk, and placing it within the reach of every one. While a *few* lament that the prices of honey and bees are likely to go down, thousands will rejoice. Can we not be happy in seeing others happy, even if we do suffer a little? Money easily earned does not, by any means, bring happiness.

CATNIP.

THE best plan for raising catnip is to sow the seed very thickly, in March, on good garden soil, let the plants grow till fall and cover them slightly with litter, to prevent their being thrown out by the action of frost during winter. As soon as the freezing weather is nearly over, the next spring, the plants should be set out 3½ feet apart each way, (4000 to the acre) and cultivated like corn. The plants will blossom the first season, but are so small as not to produce much honey. This transplanted crop will commence to bloom the latter part of June, and continue to throw out new shoots and branches which will be covered with bloom and with bees until hard frosts.

During the summer of 1875 all sources of honey, except catnip, were cut off in these parts, and friend Hill, who lived about nine miles from where I was situated with my bees and catnip, had to feed his 84 swarms between two and three thousand lbs. of honey during the summer and fall. I had ⅛ acre of cultivated catnip, besides considerable that I had sown in wild places, from which my bees gathered an abundance to keep up brood rearing through the summer and fall, and increase from 23 to 38. During the latter part of that season Mr. Hill paid us a visit and while looking at the catnip which covered the ground completely, and stood as high as a man's head, discussing its merits, I remarked that I believed my bees had, during the three months they had been at work on it, gathered at least one pound of honey from each plant. He said he did not doubt it in the least.

I have no seed for sale at present but could furnish a few thousands of plants in the spring. Have not enough to make it an object to advertise.

M. NEVINS, Cumminsville, O., Jan. 5th, '78.

FRIEND JOINER AND HIS "CONVENTION."

WHAT HE SAW, HEARD, AND LEARNED.

LAST week I attended a Bee-Keeper's "Convention," one of your kind, at the residence of W. H. Stewart, Orion, Richland Co., Wis. He has lately bought a 5 inch comb machine of you. Mr. Stewart is a good mechanic, either in wood or metal and a genius generally. He has discovered, in a few hours experimenting, a much simpler method of dipping and rolling, than that described by you in Dec. GLEANINGS; he uses no ice, is not particular about the temperature of his melted wax, or water tank, yet at one dipping he makes sheets of any thickness, and they come off in the water tank without using anything to keep them from adhering to the dipping plates, or any ice. I was somewhat incredulous at first, but we built a fire under his boiler, he dipped and I rolled, and I had the satisfaction of making some of the most beautiful fdn. I ever saw.

We went and looked at his bees; at the beginning of winter he dug a trench and set his hives *over* the trench banking them up with the dirt from the trench. The weather was very warm, some days as high as 80° in the shade, and of course his bees soon became uneasy, and he was forced to return them to their stands.

You should see his bees! He has swarms in box hives 17 inches each way *inside*, mostly filled with comb and bees, showing between *seven to twelve* combs. Many hives are heavier than I can lift, and I can lift 200 lbs. He has one of the best locations I know of, but his large hives cause the white honey to be placed in the body of the hive beyond his reach, and the late buckwheat honey in his surplus boxes. Mr. Stewart now proposes, with the aid of Simplicity hives, sections and fdn. and by the help of GLEANINGS, to change all this. But alas! a most formidable difficulty presents itself. To prevent swarms leaving new hives, in place of cross sticks he has placed in each hive, before putting in the swarm, a quantity of *oak brush!* This has answered the purpose intended, but they can not be transferred, it being impossible to get the combs out in pieces larger than your hand. I think he will solve the difficulty by drumming out all bees three weeks after the first swarm issues, when there will be the least brood in the hive, and putting the swarm into S. hives on fdn. comb, rendering up the old combs and running them through the '*masheen.*"

Novice, let me congratulate you on the little fdn. machine. It is really a "gem," so simple, and so perfect. As bro. Stewart says, "It's only fun to make fdn." While we were rolling it out and improving the time discussing problems in bee culture, Stewart declared he would give a ten dollar bill to have you drop in, as I had.

Grooving sections for fdn., is a waste of work, in my opinion. Set a tin plate over a lamp and put some nice clean white rosin in the plate. When melted, dip the edge of the starter in the rosin and stick it in the section. "Mein vrow" will put them in at the rate of one a second; they cool instantly, and you may lift a case of sections by a starter.

R. L. JOINER, Wyoming, Wis., Dec. 29th, 1877.

Thanks for your "report" friend J., but I wish to add just one word of caution, about that white rosin. Nothing is more disagreeable in food, than a little bit of rosin; and after a few customers have said your comb honey tasted of rosin, you would have a worse trouble on your hands, than did we when we used it for coating the honey barrels. Even if the rosin would hold secure enough to have the fdn. bear shipping, I think in the end, it would prove more trouble, for not every one can handle melted wax and rosin as well as that skillful wife of yours, (begging Mrs. J's. pardon). Some of the rosin usually gets on our clothes, and perhaps on the floor as well. If we have no groove, how are we to get the fdn. exactly in the middle of the top bar? Bear in mind that this groove only costs 2½c. per hundred boxes.

CHAFF HIVES.

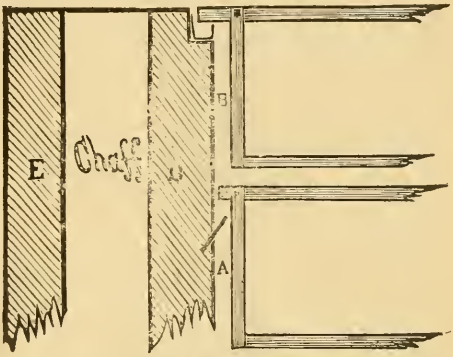
HOW NOT TO MAKE THEM.

SNOW 18 inches deep, mercury 16° below zero yesterday morning, but pleasant to-day. Have just been out to look at my three stands of bees packed in *half* chaff hives; find bees in center dry and nice, but around the ends and sides where the upper story covers the lower, the snow had driven in and the warmth from the bees had melted it, causing it to run down on the inside. As a result of this I found frost wherever these apertures were.

So friend "Novice" I have concluded that this *half* chaff idea wont do, and I want a saw that will rip those 3 inch strips for the regular chaff hive. Can such a saw be used on the foot power table and be run by one horse hooked to a "Ground Hog Power?" Would it be cheaper to buy mandrel, boxes and saws, and rig a table of my own? Inclosed find diagram; please tell me what you think of it. I dislike the idea of having to remove *fourteen frames* defore I can take *one* from the bottom. C. H. DEANE.

Mortonsville, Ky., Jan. 8th, 1878.

So many have asked questions in regard to this problem of making chaff hives, I have thought best to submit the sketch our friend sends us; not to show you how to make chaff hives, but to show you how *not* to make them. The hives made with the upper story removable, have turned out just as I felt sure they would. The plan given in the sketch, has the objection that the upper frames are not interchangeable with the lower ones, on account of the long top bar. This seems a very simple matter, yet I know of no way of getting over it. I too, would like some plan by which I could get out one of the lower frames, without taking all the upper ones out first.



If any one of our readers will study up a plan sufficiently simple, I will pay $25.00 for it. The conditions are that it allow of using frames all precisely alike; that there be no loose valves or hinges inside the hive, for the bees to cover with propolis; that the device be cheap, simple and effectual. If I think well enough to use and advise it, I will pay the inventor, the $25.00. I will explain to you some of the difficulties. The space between the frames and the ends of the hive, must nowhere exceed ⅜ of an inch. This makes the projection at the end of the frames, as seen just above A, very short. The strap iron set in the side of the hive for it to hang on, is also much in the way, and if you are not careful, will scrape the ends of the frames and kill bees, when they are handled. Friend D. has shown the chaff enclosed between thick boards. This, I think is an error, for the stuff should not exceed ½ inch in thickness, and the width not more than 3 inches, that the chaff may be constantly ventilated, and may dry out quickly should it ever get damp from the breath of the bees.

As we have explained, this stuff is cheaply and quickly made from cheap pine lumber called culls; it can be bought at almost any lumber yard, for $10.00 per M. The 3 inch siding cannot well be split by foot power, but one horse would do it very well, if you feed slowly. For this work you will want our $8.00 mandrel, and a $3.00 ten inch saw. You had better make the table at home. I don't know about the "Ground Hog" horse power, will you tell us about it? Our bees at this date—Jan. 15th,—are in beautiful order under the chaff cushions; even the nuclei, passed the late zero weather, as bright and fresh as could be. If I should succeed once in my life in wintering every colony, would it not be grand? There are, nuclei and all, just 93 of them.

P. S.—While writing the above a letter was handed in, that solves the problem completely, except that the *lower* frames cannot be used in the *upper* story. The regular chaff hive can be fixed in a few minutes, to take these short frames crosswise in the lower story, and if you do not like the arrangement, there is no harm done to the hive. Here is the letter:

> The section of country in which I live has never been fully tested as a honey producing section. Bees are generally kept in log or box hives, from 2 to 3 ft. high, stuck up on a bench 18 in., or 2 ft. from the ground. How is that for "high?" No use for sawdust or danger of toads, eh?
>
> Last year, I secured 40 lbs. of box honey and a fine swarm from one of the above described hives, so I conclude that ours is a honey section. I have been trying to make some improvement in bee culture, but was groping in the dark until I got hold of GLEANINGS. Then I began to see light. I began immediately to make frame hives and last summer I got 2 Italian queens from Taylor, and 3 from Nellis. I introduced all successfully and they all proved purely furtilized. I began to feel really proud of my success. I now have 31 stands; 15 in frame hives, frames 11¼ by 12½. I intend to go slowly and want to go "sure." Many thanks to GLEANINGS for instructions.
>
> In Vol. 5, page 8, of GLEANINGS, you say in your description of chaff hives, that to have the frames in the upper and lower story both run the same way is impossible, unless we bring in loose pieces that can never be tolerated in a bee hive. Why not use a frame below, that will hold but 6 section boxes such as you spoke of in last month's GLEANINGS for Simplicity hive? I know you object to two kinds of frame in an apiary, but they would be so nice to handle and so easy to prepare for winter. I think I'll make a few in order to test them; my idea is to make the hives so that the space at the ends of the lower set of frames can be filled with chaff all the time, and by using a division board or chaff cushion at the ends and a cushion on top, the bees have all the protection they need. The top story will need no chaff, so your frames can reach the outer wall of the hive. A hive on the above plan will be neat, convenient to handle, well adapted to out door wintering and easy to construct. A. F. CONAWAY.
>
> Mannington, West Va., Jan. 12th, 1878.

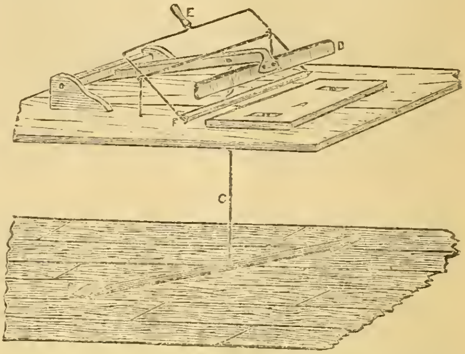
MACHINE FOR PUTTING FDN. IN THE FRAMES.

ON page 68 of last year's GLEANINGS, I suggested a machine for putting fdn. into frames. Our friend Simpson, of honey plant notoriety, it seems has worked the idea out. He writes:

> I have made and used a simple machine at a trifling cost, that will fasten securely the fdn. as fast as you can handle it. I will try to describe it to you as well as I can and if you can make any use of it, you are welcome to do so. * * * * * *
>
> Dip a piece of sponge in honey, cut your fdn. in pieces as you wish them, and lay them in the sun or by a stove until soft enough. Have a gauge for your top bar so you can just push it half way under the head piece. Now, with your sponge, rub the under side of the head piece, put under your frame, then, just the edge of your fdn. under the iron, come down with the foot on the lever, and it is done. By having your sash and fdn. where you can reach them, you can work it as fast as a printer can print cards on a foot press, and if your top bar is dry, and your fdn. is right, it makes a complete job of it. If you can get the idea from this description, make one for yourself, and my word for it, if you get it made right, it will pay you, and perhaps you can improve on it
>
> JAS. A. SIMPSON, Alexis, Ill., Jan. 10th, 1878.

After looking over his description, we made the machine illustrated.

Instead of the sponge used to lubricate the burnisher D, we have a little tin trough F, holding a little honey. After a sheet has been fastened to the frame, the handle E, is pressed down gently, wetting D, with the honey, the full length. The other parts will I think be comprehended at a glance. The frame is laid over the board A, with the comb guide under the burnisher D. The fdn. is then laid with the edge on the comb guide, the wax being warm, as friend S. suggests. Moisten the burnisher with honey as directed, press the foot on the treadle, and the job is finished.



Although the machine works all right without any trouble at all, I confess unless I had a great many frames to do, I would not want so much machinery around; the plan given in our price list, does very well for several dozen or a hundred. If you have a thousand or so, to put in, I think very likely a machine would pay for itself.

As a powerful pressure is required to make sure work of it, the levers must be very strong. Ours are made of inch square bar iron. The expense, table and all, made in good neat shape, will be about $15.00. The spring that raises the burnisher, is coiled wire, around the rod C, above the table.

* * *

A VERY neat volume of 350 pages, from Geo. Neighbor & Sons, London, is just at hand, entitled The Apiary, or Bees, Bee Hives and Bee Culture. The paper, printing, engravings, &c., are excellent, but our English cousins adhere with strange tenacity to old forms of hives and implements. The complicated and expensive structures they recommend for hives, lead one to wonder whether they ever keep bees to make money out of them. It may be we err in the opposite extreme, but so long as we get tons of beautiful honey, with our cheap and simple fixtures, make our bees pay their way and get out of debt, can we be very far in the wrong?

* * *

OUR 75c smoker, it seems is answering every purpose, and we are already selling more of them, than we ever sold of any other kind, early as it is in the season. If you are in doubt in regard to them, you can return any one at our expense, that does not prove perfectly satisfactory. One of our friends very innocently asks if they will "go" when turned over. In carrying them about in the apiary, I generally carry them upside down, or nearly so; they are then in position to shoot the smoke right down into any hive. Prof. Cook objects to the obtuse nozzle; this I especially like, because it is so easy to clean out the soot that always accumulates, more or less.

(*Drone. Continued from last month.*)

One of the most wonderful things about the drone or male bee, is that it is hatched from an egg that is unimpregnated. So wonderful indeed is this, that the matter has been for ages disputed, and is, by many who have not looked into the matter and examined the evidence, even now. What we mean by unimpregnated, is that queens that have never met the male bee at all, will lay eggs, and these eggs will hatch, but they always produce drones, and never workers. Those who have had the care of poultry, are well aware that the hens will lay eggs right along, if no cock is kept in the yard at all; and if I am not mistaken, a pullet would commence and lay perhaps nearly her usual number of eggs, if she had never seen a male bird. Now, nearly the same is true with regard to the queen bee. If she fails to meet a drone during the first 30 days of her life, she usually begins to lay eggs, but she seldom lays as many, or with the same regularity, as a fertile queen. The eggs the hen lays, if she is allowed to sit, never produce any chicks at all. The eggs laid by the queen, under the same circumstauces. as I have said before, always produce drones. There is one more fact connected with the common fowl; if the male bird is put into the yard with the hen for one day only. good fertile eggs will be laid for many days, possibly a whole laying. If a black Spanish cock should get among a flock of white hens for only a single day, all the eggs laid for many days afterward will produce chicks with more or less black feathers on them. I give these statements from actual facts. The point I wish you to observe, is that the eggs, of even the common fowl, are fertilized as they are laid by the hen, or a few days before, possibly. With the fowls, one meeting with the male bird suffices for the fertilization of an egg daily, for a week, or more ; with the queen bee. for her whole life of three or even four years.

I do not know whether the hen has the power of laying fertile or unfertile eggs at will, or not; perhaps not, but I do know that a queen bee lays fertilized eggs, and unfertilized, rapidly, and in succession, alternating from one kind to the other. Skillful microscopists have carefully dissected eggs from worker cells, and found the living spermatozoa in numbers from one to five. These living spermatozoa, were precisely identical with those found in dissecting a mature drone. Again; every egg a queen lays, passes a little sack containing a minute quantity of some fluid; the microscope shows that this fluid contains thousands of these spermatozoa. Is it not wonderful that these spermatozoa should live four years or more in this little sack, awaiting their turn to be developed into a higher life whenever they should be required to fertilize the egg that is to produce the worker bee? Very well; now the egg that is taken from a drone cell, contains no trace of spermatozoa. Therefore it, like the egg of the common fowl, unimpregnated, should never hatch. But my friends, it *does* hatch, and produces the drone. The first glimpes we get of the little bit of animated nature, is the tiny speck alive at the bottom of the cell. Does he grow out of nothing, without parentage, at least on the paternal side? If his mother was an Italian, he is also Italian; if a black queen, he is also black. We shall have to conclude, perhaps, that he is the son of his mother, and nothing more. The egg that has never been impregnated in the usual way, must, after all, have some living germ incorporated in its make up, and this germ comes only from the mother. The great skill and proficiency with the microscope, required to make these minute examinations, is such, that but one or two have ever succeeded in exploring as far as I have mentioned. and it is somewhat like our investigations in the polar regions. Who among us, will educate himself for the work and carry it along.

Drones are also hatched from eggs laid by worker bees. These are usually smaller in size than from those laid by a queen, and the question as to whether they are capable of fertilizing queens, so as to be of some value, like other drones, is one that I believe has never been decided. Some facts have been brought to light that seem to be pretty good evidence on both sides of the question, but so far as I know, nothing very definite. I confess, that I would not want to make use of them, even if they were good, for I want the strongest, healthiest, and largest drones I can get. For a further account of the mothers of these queer drones, see FERTILE WORKERS.

After what I have said, you will perhaps see how clear it is, that the drones are in no way affected by the fertilization of the queen; or, in other words that all daughters of a purely fertilized Italian queen, produce drones absolutely pure, whether they have been fertilized by a black drone or not.

Until quite recently, we have had no easy way of repressing the production of drones, in far greater numbers than could ever be desirable. Since the introduction of the fdn., however, it is quite an easy matter to make almost every cell in the hive a worker cell. On the other hand, if we choose, we can have a hive filled entirely with drone comb, and a good queen could, I think, be induced to raise nearly, if not quite, a full peck of drones at one time. By this means we can have our drones raised from such stock as we choose, and we can save the vast amount of honey that has so long been wasted by rearing and feeding drones that we do not need. While extracting, I have found as many as several pounds of drone larvæ in a single hive, and to save the honey they would consume as soon as hatched, we used to shave their heads off with a very sharp knife. This is certainly rather expensive business, for it must take more than a pound of honey, to say nothing of the value of the pollen, to get up a pound of sealed brood. If all this labor and material had been utilized in the production of worker brood, it would doubtless have been equivalent to a swarm of bees. All worker comb, would have insured this without trouble.

It is quite probable, that all the drones will be raised that can usually be required, without making any special provision for them; but still, it may be a good idea to devote one hive, in an apiary of 50 or a hundred colonies, to the production of choice drones.

REARING DRONES OUT OF SEASON.

This is quite a difficult matter to accomplish, especially in the spring; and although we have many times fed colonies with this end in view, we have always found some other colony that would have drones flying just as soon, without any artificial aid. Drones may be kept almost any length of time, by making the colonies containing them queenless, or by putting them into queenless colonies. During warm dry weather in the summer or fall, drones may be procured by feeding, but the feeding must be regular, and given every day for several days or weeks. By feeding one colony a barrel of sugar in the fall, I succeeded in getting a nice lot of drones in October. Of course their combs were taken away and empty ones given them, to give the queen room. Before we can get drones, we must get worker brood under good headway, and then if we put a drone comb right in the centre of the brood nest, the queen will, if all things are favorable, begin at once to fill it with eggs. The feeding must be kept up, however, for bees are very easily discouraged, and if a stoppage occurs in the daily supplies, they will not hesitate to pull the young drones out of their cells and sacrifice them without mercy.

DESTRUCTION OF DRONES IN THE FALL.

This does not necessarily occur in the fall, but may take place at any time in the summer; and I have several times known the drones killed off between apple bloom and white clover, only because supplies ceased, causing the bees to become discouraged and give up swarming for the time being. I know of no way in which you can tell so well that the yield of honey has ceased, as by the behaviour of the bees to their drones. When in the midst of the honey season, you see a worker buzzing along on the back of a drone who seems to be "scratching gravel" to get away from the hive, you may take warning that the yield of honey is failing, and that you had better stop making artificial swarms and prepare for feeding, if it is your intention so to do. I do not know that I ever saw bees sting drones, but they sometimes pretend to do so; I rather think it is only a feint to drive them away. The poor drone at such times, after vainly trying to go back into the hive, will sometimes take wing, and soar away off in the air, only to return after a time to be repulsed again, until he, perhaps through weakness and want of food, flutters hopelessly in the dust, and so submits to the fate that seems to be a part of the inexorable law of nature, and his being.

To preserve drones for late queen rearing, I have been in the habit of carrying all frames containing drone brood, to some queenless hive, knowing they would be safe there as long as wanted, even if it were all winter. I believe drones have been, under such circumstances, wintered over; but whether they are of any value in the spring or not, I am unable to say; I should fear they would not be by the time queens could be reared. We usually have drones in some of our colonies, as soon as April, and that is as early as I should care to undertake to rear queens, ordinary seasons. I have several seasons reared queens and had them successfully fertilized, even after all the drones had been gone some time, so far as I could discover, and as they proved to be purely fertilized, I have been not a little perplexed. Is there a possibility that by some *other* strange exception to the rule, a queen *may* lay eggs that will produce workers as well as drones, without being fertilized? If such is the case, it will account for the rare instances in which queens hatched with imperfect wings, lay eggs that produce worker brood. We know that aphides and some other insects, reproduce their species without any agency of the male, for several generations. It is of no use to say we do not believe it, for the evidence is indisputable. How wondrous are thy works, O Lord.

DYSENTERY. When you see your bees covering the door-steps and entrances to their hives with a yellowish disagreeable looking excrement, you may say they have the dysentery, or what is usually known as such. If the weather becomes very warm and pleasant, they will usually get over it, after they have had a full flight. If, on the contrary, the symptoms show themselves before warm weather, and no opportunity is given them to fly, they may get so bad as to cover their combs with this substance, and finally die in a damp filthy looking mass.

CAUSE OF DYSENTERY.

I believe the most common cause, is bad food, coupled with an open, cold hive, with a small, or insufficient cluster of bees. I can hardly think any food alone would produce the disease, because we rarely, if ever, find the bees suffering from anything they will gather, in warm summer weather. Honey gathered from rotten fruit, if we may call it honey, is very productive of this complaint, and cider from cider mills, is almost sure to kill bees at the approach of cold weather. See CIDER. I knew a lady who boiled up a mash of sweet apples and fed to the bees, because they were short of stores, and she could not afford to buy sugar for them. They all died of dysentery, long before spring. Where dampness accumulates from their breath, and settles on the combs, diluting the honey, it is very apt to cause these symptoms. Sorghum syrup, has brought on a very aggravated form, and *burnt* candy or sugar is almost sure poison to bees, although it may be fed them with impunity in the middle of the summer. The burnt sugar, or caramel, attracts moisture from the air very rapidly in damp weather, and I am inclined to think it is this moisture that produces the disease.

While it is very certain that no such symptoms are found in warm weather, it is also certain that a strong colony in a hive with soft warm dry porous walls, will stand an amount of bad food, that a weak one, or one exposed to drafts of cold air, will not. I have known bees having considerable stores of cider, to winter very well. if the colony were strong enough to keep the whole interior of the hive, dry and warm. A powerful colony, if left with their hive uncovered during a rain storm, will soon dry themselves, and while they are doing this, they remind one of a sturdy cart horse, as he shakes the water off his hide and dries himself by his internal animal heat. While they have the health and numbers to repel moisture in this way, they are safe against almost anything. But to help them to keep this internal strength, they should have close and comfortable quarters, very much such as you would need my friend, to enable you to pass a severe winter's night, in health and comfort. The hives often used, are so large and barn-like, in respect of the winter's brood nest, that comfort is almost out of the question, for it does little if any good to pile straw corn-fodder &c., over the outsides of the hives, while the cluster within has no sort of protection at all. If they were in a hollow tree, the diameter of which was so small that they could fill it completely, they would be in a much better place, especially, if the sides were lined with soft dry rotten wood. I have seen icicles nearly as large as my arm, in box hives that were tight and large; these had all formed from the condensation of the breath of the bees. Now, should they melt during a thaw, in such a way that this water would run down on the bees and their unsealed stores, it would be very apt to produce unhealthiness, to say nothing farther.

PREVENTION OF DYSENTERY.

From what I have said, you will probably infer that I would make the swarm larger, or the hive smaller, during the winter season. If we add, and have the walls of the hive of some warm porous material that will absorb moisture and afterward dry out readily, you have the idea so far. Perhaps the chaff cushions and DIVISION BOARDS are the readiest means at our command of accomplishing this.

While they may get along on almost any kind of food when thus prepared, I would by no means fail to give them good wholesome stores, as far as possible. Honey gathered in the middle of the season, is generally wholesome, for it is, by the time winter comes, thoroughly ripened, by the same drying out power I have spoken of. Honey gathered in the fall, if sealed up, is generally good, but some of the fall flowers produce a honey that seems to separate into a thin watery liquid, and a granular substance, something like candied honey. I am not quite sure this causes dysentery, but it looks very much as if it does, some seasons. A syrup made of white, or whitish sugar, I believe is always wholesome, and when bees are short of stores, it is probably the cheapest and safest of anything we can feed late in the fall. We have had one report of the new grape sugar that seemed to indicate it might be productive of dysentery, but it has answered so nicely in our apiary, up to this date, Jan. 15th, '78, that I am inclined to think the quality of the sugar was not quite like that we use.

I once wintered a colony, on sugar stores, that came out so healthy in the spring, that they did not even spot the white snow visibly, when they voided their excrement at their first flight in the spring. This, I believe we may consider perfect freedom from any sign of dysentery. A friend who is an old time box hive bee-keeper, says it is the pollen that makes them spot the snow; that if they are wintered without pollen, they will make no perceptible spot. I think there may be some truth in this, for those wintered without pollen, seem to spot the snow but little. Spotting the snow is not always an indication that we should be alarmed, especially if the bees seem to rise without trouble, and get back to the hive in safety; but should they soil the entrance and inside of their hives, and then fall around the entrance in considerable numbers, unable to take wing, it is pretty safe to say without very warm fine weather, they will soon be demoralized and broken up.

CURE FOR DYSENTERY.

Summer weather seems to be a sure and certain cure. One day of summer weather. or a day warm enough for them all to fly freely is, I believe, a cure usually; especially if they are provided with wholesome food and tucked up warm, after they have had this fly.

The question now comes up, cannot we give them this needed fly, by artificial means. It has been done, many times with success, by taking the hive into a warm room, and fixing a square frame of thin cloth or netting over it, in which they can fly and empty themselves. This frame should be about a yard square. The room should be light and warm. After they are through, the temperature should be allowed to fall, until they are driven back into the cluster on the frames. To avoid soiling the hive and combs, papers may be spread over them, except allowing an opening for the bees to come up into the cage. This is a troublesome and disagreeable task, and I think will hardly pay, unless it is with a few hives, or to save a very valuable queen. A beginner is very apt to be alarmed, when there is no trouble at all, and I repeat, unless the bees are soiling the combs in the hive, and getting themselves soiled, damp and demoralized, I would let them alone (after tucking them up with chaff cushions) to take their chances until there comes a warm day. I know of a beginner who on looking into his hive and finding only a small cluster away down in the combs, imagined they were nearly all dead, and hearing through the Journals of giving them a fly in a cage, took the innocent and unoffending bees into the house, and warmed them up. The little knot of bees began to unfold under the influence of the warmth, and turned out to be a good sized colony. They had packed themselves down into a little sphere, so small that an inexperienced person would have been likely at first glance, to call them only a good sized handful. but they were a good swarm, and were in just the shape they should be to stand a zero freeze, or rather, they had done the very best they could in a winter brood nest four or five times as large as they really needed.

If the trouble is caused by bad honey, and this is many times the case, they should, after their flight, be removed from their combs, and supplied with some you know, or have reason to think, is good, well ripened, wholesome honey. Every bee-keeper should have a stock of such combs on hand for emergencies. They can be tâken from the hives during the yield from clover or linden, in July or Aug. If you cannot get these, I would give them candy, a small lump at a time, just over the cluster, the bees of course being on empty combs. 'Tis rather risky I know, for after the bees have become diseased as I have mentioned, they seem to be discouraged, and to have lost all heart to do anything. I have known them to starve with candy or honey close to them, at such a time. If you can stir up some ambition in them, and get them to clean off their wings and "plumage," and go to work, there will be no trouble, but so long as they preserve that listlessness and indifference, there is but little hope for them; they will probably swarm out on the first warm day, if you do "tinker them up." If the season is pretty well along, say April or May, you can often stir up their ambition, by giving them a little unsealed brood from another colony.

The old adage, that an ounce of prevention is better than a pound of cure, will apply most emphatically, to dysentery. It may be that we *cannot* always *prevent* dysentery, for some cases seem rather difficult to account for, but I think we can in the great majority of cases.

THE AGENCY OF THE APHIDES IN PRODUCING DYSENTERY.

Perhaps the most productive cause of dysentery, is the honey from the APHIDES; or at least most complaints have been made of this honey. As bees seldom touch this, except during drouths or unfavorable seasons, it is quite likely it has been the cause of much of the mischief. If the early honey is all extracted from the brood combs, and the bees left with nothing but this bad honey, gathered late in the fall, the matter is much worse; and many cases have been reported, of colonies dying where the extractor had been used, while those untouched had been free from the disease. The moral is, to refrain from extracting too closely from the brood apartment. I would, at least, let the bees fill their brood chamber with clover or linden honey, just before the yield ceases, extracting only from the combs in the upper story, toward the close of the harvest, unless you choose to feed them up for winter, on sugar or candy. We have had one or two favorable reports of wintering on the aphide honey, from which we may conclude it is not always deleterious.

ENEMIES OF BEES. These are, so far as I know, taking them alphabetically, ANTS, BEE-MOTHS, birds, KING-BIRDS—mice, parasites, skunks, TOADS (and frogs) and wasps. Perhaps I should also add, wicked boys, or men who have so little regard for the rights and faithful hard earnings of their fellows, that they sometimes steal hives, honey and all, just for the trifling amount of honey to be got from the mashed up ruins, which they generally make of the bees and hives. To be frank, I should add patent hive men; and these latter have, so far as my experience goes, been worse enemies of the bee than any I have yet enumerated. It has been said, and with much justice, that ignorant bee-keepers were the bee's worst enemy. If ignorance had coupled with it, wilful deceit and fraud, I do not know but that I should subscribe to the assertion; but as those who have been ignorant, are now very rapidly becoming educated and intelligent bee-keepers, I have much charity for them. The man who is persistently and wilfully bad, is not only the worst enemy of bees, but of all mankind, himself included; and of this class are the greater part of those who take money for their pretended inventions in bee hives. I am speaking severely, I am aware, but could you, year after year, hear the statements of those who have taken up the pursuit with all honest enthusiasm, as I have, and hear them tell of how they have invested money and time, all in a wrong direction, of how they have been kept purposely in the dark in regard to what was really known about bees, of how they have been told that the bee-moth is the one great enemy, and that no one else has the secret of its banishment, I think you would agree that these land sharks in human form are worse enemies than all the moths, birds and toads combined, that ever infested the neighborhood of bee-hives.

Ants and beemoths, have been noticed already in their respective places; under the head of king birds, we shall mention what is known of the depredations the feathered tribes make on bees.

MICE.

Mice, only do harm when they get into the hives, and this part of the subject has been sufficiently noticed under the head of entrances. It may be well to remark that mice sometimes make sad havoc among surplus combs, when stored away with small patches of honey in them. The combs will be completely riddled during the winter time, if they are left where mice can get at them. On this account the honey house should be mouse proof, and for fear that a stray one may by accident get in, it is well to keep a trap ready baited with toasted cheese. If yon have not a tight room, make a tight box, sufficiently large for the purpose.

PARASITES.

The only parasite we have ever seen, is the *Braula*, or Italian bee-louse, and we have never seen them except on bees just imported from Italy. I feel safe in saying no fear may be anticipated from them, if the bees are kept in strong colonies, and in clean tight hives, with no old refuse and rubbish accumulating about them. One or two reports have been received of bee-lice in our own country, but I think they were exceptions.

Wasps and hornets, sometimes capture and carry off honey bees, but unless they should take part in the work in great numbers, I would have no solicitude in regard to them.

BEE-HAWK, (*Asilus Missouriensis*),

A large fly called the bee-hawk has been mentioned by our Southern neighbors, but it is said to be easily frightened away by opening a vigorous warfare with whips and sticks.

SKUNKS.

Skunks have been known to approach the hive at night time and by scratching on or near the alighting board, to entice the bees out where they could "gobble them up." It would seem a little strange that these animals have no fear of stings, but they, doubtless, are guided by a sort of instinct that enables them to divine how to get hold of the bee with its sweet morsel of honey in its honey sack, without receiving harm from the sting.

SPIDERS.

Spiders, and the method of repelling them, we have mentioned under ALIGHTING BOARDS, and PORTICOS. They too, as well as toads, seem to have a rare appreciation of a heavily laden bee as he returns to the hive; we should therefore be careful that all spider webs be faithfully kept brushed away from the hives, and that the hives have no corners nor crevices about them, to harbor such insects. Be sure there is no place that the broom will not clear out at one sweep, for where we have a hundred hives, we cannot well spend a great amount of time on each single one. The house apiary is quite convenient in this respect, and it gives me a fine appetite for breakfast, to go out bareheaded, and brush off every trace of a web, with such genuine good will that the poor spiders as soon as they have recovered from their astonishment, with one accord, agree that the locality is an unhealthy one for those who believe in driving a thrifty business.

I am inclined to think that many of these so called enemies, only take up the destruction of bees as a chance habit, and that it is not always to be looked for or expected. Common fowls sometimes get a habit of eating their eggs, but it is so unusual an occurrence that we can hardly regard it as a matter of any very serious importance. It may be well at times, to look out for the enemies that prey on bees, but as a general thing, I think they are quite capable of fighting their own battles, if we give them the proper care and proper hives.

THIEVES AND PATENT RIGHT VENDERS.

Under APIARY, I have mentioned how we can protect our hives from the inroads of thieves, but I fear it will require something more than tight high fences, to protect bee-*keepers* from venders of patent hives. I do not know a single patented feature on bee hives and implements, (and there are hundreds and hundreds of them), that would come into general use if the patent were removed. Almost constantly I am receiving descriptions and circulars of some patent hive, asking if I would advise investing in them, and although I have faithfully examined every thing that has come up, I find them pretty much all alike; either wretched mistakes and blunders, or the work of greedy, unprincipled, bad men. Have nothing to do with them, and under no circumstances think of paying them money. No, not even if they are ministers of the Gospel, as many of them claim to be; and some of them are I presume God fearing men, whom the sharpers have by oily words, persuaded to undertake the work; for they know full well, that there is no advertisement in the world like having Reverend attached to the name of their agent, or among the testimonials appended to their circulars. I would that I were able to convince *some* ministers of what a sacred one is their calling, and of the importance of the most zealous care in guarding it from contamination.

So far as the winged, feathered and four-footed tribes are concerned, we have, my friends, but little to fear from enemies of bees, and we shall have but an easy task to keep them in subservience; but from ignorant and unprincipled men we have much to fear; and we have abundant need of the most earnest and faithful work, in the shape of Christian kindness, united with a firm and decided stand against speculators and sharpers.

ENTRANCES TO HIVES. I do not know that it makes any *very* great difference to the bees, or with the amount of honey gathered, where the entrance is; whether at the very lowest part of the hive, or right in the top. I have had them do well with their entrance in almost all positions. On many accounts, an entrance even with, or a little below the bottom board of the hive, would be most desirable. This gives the bees every facility for removing filth, or dead bees that frequently clog the hive and combs in cold weather, also bits of refuse comb, cappings from the cells, dust &c., for this all falls to the bottom of the hive, and is naturally carried toward the entrance by the passage out and in, of the inmates. Also, if the upper part of the hive is close and warm, the warm air generated by the cluster, rising by its lightness, compared with the colder air out doors, has a much less chance for escape, than if the entrance were nearer the top of the hive. If the entrance is a little below the bottom board, cold winds and storms, are not so readily admitted.

It has been said that an entrance part way up, will not be so liable to become clogged with dead bees. This I admit, but I think it would be much better, to have no dead bees at all in the hive, and we seldom, if ever, see any in the chaff hive or in any hive that is equally well protected. It has also been said, that if the bees could get in nearer the top of the hive, they would have a short path to the center of the brood nest, where they generally make their way about as soon as they gain a foothold. This I admit in part, but if we give the bees this short cut *in*, we also give the warm air of the brood nest, a short cut *out*. Besides, with the shallow L. frames we use and advise, the bees have but a short distance to climb. All things considered, I think we cannot do better than to have the entrance just below the bottom board, as in the two hives we have illustrated. In the Simplicity hive, the entrance is made by pushing the hive forward so as to project a little over the bottom board. This arrangement, while about as simple as anything can be, has some very decided advantages; if the entrance is to be enlarged, it is done by simply moving the hive forward still farther. This gives the most thorough ventilation, without in any way confusing the bees by making unusual openings; and with a very strong colony, it permits all hands to rush out for the fields in the morning, with a facility I have never seen in any other arrangement. With the old style L. hives, we used to have a ventilator at the back. Of course these ventilators, would be used by the bees as places of exit. If we covered them with wire cloth, bees would be constantly biting and buzzing at the wires, trying to get out. Why not let them use these for entrances? Well, so we did, but when it became desirable to close them in the fall, many bees would be confused and lost, when by simply enlarging and contracting the usual entrance, we have no such trouble.

I need hardly add that where we have the entrances arranged in this manner, close to the ground, we *must* have the ground clean and free from weeds for several feet around and in front of the hive. See APIARY, and ALIGHTING BOARDS.

The entrances to all hives, in the winter time, should be closed to such a width that no mice can by any possibility get in; if they do not exceed ⅜ of an inch, there will be no danger. When bees are wintered in the open air without protection, the dead bees are liable to fall down, and clog the entrance. As soon as a warm day comes, they will try desperately to get out. The apiarist should be on hand at such a time, and while he lifts the hive from the bottom board, an assistant should, with a broom quickly brush off every accumulation. The hives and combs should then be fixed so that no more may straggle away from the cluster and get frozen between the empty combs.

SIZE OF ENTRANCES.

With strong colonies, this is a matter of no great importance, providing the entrance is large enough to let all the bees out and in readily in the height of the honey season, and not so large as to let in too great an amount of cold air during the severest winter weather. In the house apiary, we use a two inch auger hole, but it is in reality, reduced to about 1¾, by a piece of thin whitewood veneer steamed and rolled up into a tube. The size of these entrances seem about right for a strong colony; if the colony is weak, we reduce it with a wad of paper. The entrances are left full size all winter, and all things considered, I think the size is about right. We were, one winter, troubled somewhat by mice getting in at the lower ones, and metal guards were made, reducing the size to a ⅜ inch slot; this kept out the mice, but it bothered the bees so much that we were glad to take them away; and get a big cat, to guard the outside, which he has done so faithfully, that we have had no farther trouble. See ENEMIES OF BEES.

The entrances to the chaff hives, are ⅜ wide, by about 8 inches long. If the colony is a full one, we leave them open full length all winter. If weak, contract to about one inch; and for nuclei, sometimes, so that just a single bee can pass. We contract them by cutting a piece of wood just the right length and thickness. Some apiarists, I believe, practice closing the entrances to all hives during very severe weather, opening them again when the weather moderates. This, I think is carrying the matter entirely too far, and it reminds one of the philanthropic old gentleman who stood in the rain while he held his umbrella over the ducks in a puddle. We have wintered bees in the chaff hives, with the entrance open its whole length, during the most severe winters, with scarcely a dead bee having been brought out when it came off warm, and I think the bees are perfectly capable of taking care of themselves, for at least six months of the year, if they have proper food and protection. To have the entrance left open full width, of course we must have the hive contracted to a small compass and perfectly closed above, or the entrance will draw in the cold air, like the draft to a stove. Stop every crack and crevice, with chaff cushions tightly crowded in, and if you do your work well, instead of cold air forcing its way *in* at the entrance, you will find the bees can keep warm, and send a stream of hot air *out* at the entrance besides, as soon as they commence rearing brood in the spring. If you have hives that you cannot close up with the chaff cushions, as I have advised, it may be best to close the entrances during very severe weather; but I think I would always leave room enough for one or two bees to pass, lest they be forgotton, when warm weather comes unexpectedly. It is very bad policy to confine bees to their hives when the weather is such that they would try to get out. Bees wintered in a dark cool cellar, may have wire cloth tacked over the front and top to keep them from getting on the floor, if you choose, but in this case you should take them out and release them should the weather get so warm that they are impatient or uneasy. When bees are wintered on their summer stands, they are always ready for a fly whenever a warm day occurs, and are in shape to take care of themselves, under almost any circumstances, providing they have a free and unobstructed entrance.

Mr. Quinby and others, have recommeded having an auger hole in the front end of the hive, and adduce as proof of its utility, that the bees at once show a preference for this pass way. I have no doubt of it, and I think if an auger hole were made directly in the top of the hive, they would show a still greater preference for that; but for all this, I do not think it would be best for them. With tall frames, I think such an auger hole might be a great advantage, but with our shallow L. frame I would prefer not to have it, although it would perhaps do no perceptible harm to a strong colony with old and tough combs. You can easily make the experiment, and if you do not like the auger holes, plug them up again. I much prefer you should verify these statements by tests of your own. If I have made a mistake, anywhere, write, and I will correct it, before I send out any more A B C books.

EXTRACTED HONEY. Liquid honey taken from the comb with the honey extractor, has now been before the world for 10 years, and much has been the discussion pro and con, in regard to its merits, and its desirableness compared with comb honey, for table use. If I have made no mistake, I extracted the first tun of honey ever taken from one apiary, with the extractor; and as it was put directly into market, and such honey has been kept in market constantly ever since, I have had a pretty good opportunity of knowing all about it.

If all the extracted honey put upon the market were as good as some we have raised and purchased, there would, I am quite sure, be no trouble at all in deciding that it would drive honey in the comb almost out of the question. Much has been said about adulteration, but I have very little fear in that direction. It is almost as impossible to imitate a really fine article of clover or linden honey, as it is to imitate fresh strawberries. Let the people taste of the honey they are asked to buy, and they will very soon say whether they want it, and what they can afford to pay for it.

A really nice article of extracted honey will bring 20 or 25c., quicker than a poor article will bring 10 or 15; and I have seen some, aye, and have offered it for sale too, that I do not honestly think was worth over 5c., if it was worth anything at all, unless to feed bees. Is all this difference on account of the source from which it was gathered? Not at all, for all the honey we get here, in the great majority of seasons, is from clover and linden. Then where is the great difference? It is, so far as my experience goes, simply because it is taken from the hive before it is ripe. I know there are many who do not agree with me, and I presume in some seasons, and in some localities, the honey may be ready to extract as fast as it is gathered from the flowers. I make this admission solely from what others have said, for *I* have never seen any honey I thought was fit to extract, until it was all sealed over. Still farther, I do not believe it is nearly as nice, even when it is all sealed over, as it will be if left in the hive three or four weeks *after* it has been all sealed. I will tell you some of my experience to illustrate the point.

In 1870, we extracted from our apiary of less than 50 colonies, over 3 tuns of honey. It was put up in 1 lb. bottles, and more than half was sold for 25c. per lb. During the fore part of the season, the honey was allowed to get pretty well capped over, but during basswood bloom, we, bees and all, got somewhat crazy, I fear, and they brought in what was but little better than sweetened water, and we extracted and put it into bottles, and hurried it off to fill orders, hoping it would all get "good," as soon as the weather got cool. It candied when the weather became cool, for almost all honey will candy, or at least one portion will candy, leaving a thin watery part, which, if it does not sour, acquires in time a disagreeable brackish flavor, like that acquired by liquids standing in an old barrel. At about this stage, it shows that peculiar quality of pushing the bungs out of the barrels, and the corks out of the bottles, running over on the shelves and tables, to the discomfiture, and disgust, of everybody who like to be cleanly in their habits. When I tasted some of the honey in one of these bottles, 6 months afterward, I did not wonder it had stopped selling, and I made up my mind it should no more be offered for sale. I believe it was all poured out of the bottles, and sold to a tobacconist. The contents of the jars were not all alike, for the thin watery honey has quite a tendency to swim on top. We, one season, commenced to retail from a barrel of what all pronounced fine clover honey; one day a customer returned some, saying it was not like what he bought before. We assured him it was drawn from the same barrel, and went and drew some, to assure him. Behold! it was sweetened water, compared with the first. The thin honey having risen to the top, was the last to be drawn out.

(*Continued next month*).

Heads of Grain,

From Different Fields.

JAVA BEE, ARTIFICIAL FERTILIZATION, &C.

I WILL write in a few days to Fiorini about the Java bee, and get all the information I can. It will not seem strange to you that I am constantly thinking over this matter. I want to see that bee, dead or alive, without any unnecessary delay. It may prove like the big fowls from China, not of much worth, but I want to know just what its merits are, there and here. I hope you will keep the question in agitation. I know Newman will, and King will, so if our Journals are read abroad, the bee-keepers on the other side will think we are in earnest.

I have considerable information, and correspondence on artificial fertilization. Those who say they have succeeded, give their processes requesting me to not publish. They are too tedious for practice, but prove that it can be done and *seen*. I want to see it, and to see just how the queen gets rid of the drone, as the attachment is pretty strong, as you must have noticed, if ever you tried to break the organs from the drone. I was unfortunate in the use of the word "Essay" in my offer of a prize. Moon criticizes it, and others have written me. I ought to have written "for the best method"—care nothing for elegant writing. I simply want facts plainly stated, and nothing withheld. EHRICH PARMLY.

N. Y., Jan. 9th, 1878.

The above it is evident, was not intended for print, but as it touches on several questions, that are of late being much inquired about, we hope our friend will pardon the liberty.

Perhaps it may be well to state to our readers that Dr. Parmly has offered a prize of $25.00 for the best essay on fertilization in confinement, and $10.00 for the best essay on rearing queens, or re-queening an apiary. This offer, to which he refers, was given in the Dec. *Magazine*.

FERTILIZATION OF QUEENS, ASTER HONEY &C.

I saw a queen take her flight with three drones following her. After I lost sight of her, I seated myself beside her hive; in about 5 minutes she returned, fertile. Just at the time that I saw her, I saw a drone struggling on the ground a few feet away. I went to pick up the drone and found him dead. There was a white thread-like string hanging from the drone; he was an Italian, and the queen raised pure bees. Now, I believe that queen was fertilized by said drone. Twice I have seen drones chasing queens, and have seen the queen turn facing the drones for a moment, and then off again; the queen flying in a very irregular line.

My idea is this: when the queen turns facing them, if there is a drone *prepared* they mate; if not, off she goes again. The long chase is necessary to prepare the drone for the meeting, and that is the reason they cannot be fertilized in confinment. I placed some of the combs containing the aster honey that was partially candied, near the kitchen stove. It soon became liquid and is very pleasant honey.

O. W. PARKER, New London, Min., Jan. 16th, '78.

Thank you, friend P. you have certainly added a link to the chain of evidence: the question now is, as Dr. Parmly stated above, how does the queen get free from the drone? If any one really *has* witnessed the meeting, now is the time for them to "rise and explain."

BEES COMING OUT ON THE SNOW.

Last fall, I bought one big "gum" hive with about 100 lbs. of comb, bees and honey; brought them home and set them on the south side of a fence with the entrance to the south, and put corn fodder round them, except over the entrance.

The other day when the snow was on the ground, the sun came out, and so did lots of my bees; many of them became chilled and did not get back. What ought I to do? Cover the entrance, or not?

S. D. LOCKWOOD.

East Enterprise, Ind., Jan. 10th, 1878.

Your hive is very large, and the swarm of bees also, I presume, and there are therefore many old and feeble bees among them. During weather in which they fly every day, these would have perished a few at a time, and would have been unnoticed. After being confined to the hive, for some time, they came out in a body with the rest, and dropped around the entrance. Unless the number is very large, you need have no apprehensions. They look as if there were a good many, being scattered about on the snow, but I think if you were to pick them all up, you would find but a small handful. I do not think it makes any material difference, whether you let the sun shine on the entrance or not. With a very large hive, many bees get frozen, by getting outside of the cluster on the back side of large combs; these are carried out, the first warm day, and they sometimes make quite a show. The remedy is, to make the brood nest so small, that they fill if completely.

CALIFORNIA.

The outlook now for a good season is good. We had over 4 inches of rain in Dec.—heavier showers than before in years. The weather is now bright and clear, but colder than I have ever known it *here*. I saw ice this afternoon nearly ¼ inch thick.

G. F. MERRIAM.

San Luis Rey, Cal., Jan. 2nd, 1878.

ADVANTAGES OF A UNIFORM FRAME.

I see the advantage of having a uniform frame. My first experience in bee culture was with the L. hive. I used them 5 years, but I must say that the hive I now use is preferable in the following respects. First, for safe wintering and springing; secondly, for rapid handling, queen rearing, nucleus swarming, &c., and you must admit that a weak swarm in spring crowded up on one comb 10x10 inches, with division board, will outstrip 3 times their number, on an L. frame. Come to think of it tho', I am not School Master, please excuse me.

HIRAM ROOP, Carson City, Mich., Jan. 9th, '78.

The above came in answer to a remark to friend Roop, that I should perhaps like to purchase some of his bees at the very low price for which he offered them in the spring, if it were not for his having an odd sized frame. The A B C class are calling for more bees than it is likely I shall be able to supply; but if I purchase, I must have them in L. frames, or at least in something that will hang in Simplicity hives. I agree partially, in regard to the advantage of a small frame for building up, but not for rapid handling. If a small frame is to be used, I think it had better be the one mentioned last month, to hang crosswise in the Simplicity hives.

FOUL BROOD.

I have been very unfortunate with my bees, getting foul brood among them. Through the instruction of Mr. Muth of Cincinnati, I succeeded in curing it. If, in Jan. 1877, I had known what I know in Jan. 1878 I would have been $2,000 better off. The knowledge may be of benefit to others, and if you wish, I will give you the *modus operandi*.

GEO. B. BAILEY, Mill Creek, Utah, Jan. 8th, '78.

Tell us how you cured it, by all means. While we are on the subject, it may be well to mention that several complaints have been made of parties selling stocks affected with foul brood. This is a most serious matter, and every offender should be dealt with to the fullest extent of the law. There is a law for such things, if I am correctly informed. The injury done in some cases has been immense, almost beyond computation. Keep the disease within bounds, and as far as it is possible, endeavor to exterminate it.

I will not attempt to describe my feelings, when, on a Sunday morning of last summer, I found that a rascal had been busy again among my bees, the previous night, and carried off two large boxes of honey, each containing between 40 and 50 lbs. Is not this sufficient to make a person feel disgusted? I think nobody will open one of your hives in the night and risk his thievish fingers between the section boxes.

CHARLES KLIMITZ.
Batavia, N. Y., Jan. 7th, 1878.

My wife says when GLEANINGS comes, there is no such thing as getting me to bed, nor to do a single chore, until I have looked and read it all over. I can't help it, for it is as much food for my mind, as honey, good light bread and sweet milk are for my system. My crop of honey is nothing in comparison with such a report as Mr. Doolittle's, still I have a few boxes of honey, and many more partly full. It is nothing but swarming with my bees. I had two hives in particular, this season, that had plenty of room in the hive with two 20 lb. honey boxes, the upper ones being half full of comb and honey, and they swarmed and swarmed again. I put the swarm back and cut down the queen cells; there was not much honey in the combs nor much room for any more brood. In the afternoon, while working in the bee lot, on looking up I saw them swarming. I thought, "go in on your swarming." Well, they did, for they bid me and my oak grove, good bye. Some wicked thoughts came into my mind for I was "out of sorts." They were a fine swarm of yellow bees, but that made no difference, for *they* swarm while common ones do nothing in that line. My bees are mostly in the Am. hive; have some in the L. and what success I have had has been with them, by discarding honey boxes and putting on one and two stories filled with frames and starters, early in the season.

OLIVER S. CLARK, Albia, Iowa, Dec. 20th, '77.

Your postal is at hand; I may have *appeared* "blue" in that letter, but I *guess* I wasn't very blue after all. Can't imagine what caused it, unless it was from reading some of Heddon's effusions, and then trying to out Heddon, Heddon. Please don't say anything about it in GLEANINGS.

J. H. MARTIN.
Hartford, N. Y., Jan. 7th, 1878.

There now, your warning has come just too late, the matter is all in print, and all our plans and projects for having you a "Blasted Hoper," are at an end. Such is life.

ITALIANS THAT PUT ALL THE HONEY IN THE BROOD CHAMBER.

Bees haven't done much the past season. From 65 stocks I took about 2,800 lbs. surplus, all in comb. Am much pleased with those little sections. What shall we call them? I propose that we call them the "*Novice section*," what say you?

You seem to find fault with those Italians that forget to store honey in the brood nest; now friend Novice, don't you know that this "awful" propensity to store honey in the brood nest, is the only fault that I ever found with them? I have been thinking of sending to you next season for queens, and if I do, I want queens from those very stocks, that don't store in the brood nest.

How soon could you send last season's queens by mail to this State? and at what price? I don't care how small or dark they are, so they roll up an equal share of honey, with your best stocks. I want bees for *business* first, then *peaceableness*, then beauty. I keep an accurate account of each hive, how much honey they make, and other good and bad qualities, and breed only from the best, destroying the poorest every spring.

JACOB F. FLORY.
Modesto, California, Dec. 29th, 1877.

You have struck on a bright idea, friend F. I have no doubt, but that an apiary might be built up of bees that would, or would not, store all their honey in the brood nest, as we choose, by simply selecting the proper queens. We have had perhaps a half dozen stocks that would store all their honey in the sections, and have to be given frames of honey below, or they would starve. So far as I can now recollect, they were all hybrids, and were sold last fall for 50c. each. I supposed it was the strain of black blood, that gave them this tendency. I have just questioned the young man who took off the greater part of the honey, and he says it was these cross hybrids that filled the most sections, both in the house apiary and outside; but some of them needed supplies from the more prudent Italians, before they were ready for winter.

My friends, if we are working for honey, I do not believe a tinge of black blood does any great harm, and I do think dollar queens are really as valuable for all purposes, as those producing yellow bees invariably.

We could easily ship our old queens as early as April or May, but how much damage would the colony sustain by so doing? After the experience I had last season, in taking queens from full colonies, I should estimate a queen taken away in April or May, worth at least, half the price of the colony. Those who complain they can sell neither their bees nor honey, should step to the front, and supply queens in May. You can have almost your own price for them.

Do you think I can sell all the queens I can raise from 20 nuclei, handled according to your method? I mean dollar queens, from an imported mother. Is it necessary that queens from Italy be over-hauled on ariving at N. Y., or will they go through to destination nearly as well without? I understand the queen rearing business and can furnish as good queens as any one.

Black bees are quite scarce here now, so nearly every queen will prove pure. About 9-10 of mine proved pure last year. Do you send orders to your advertisers when you cannot fill them yourself? I shall furnish dollar queens next season if you think I can sell them. If I rear queens for sale, I shall want a queen nurssery as I do not think I can furnish dollar queens without one. O. H. TOWNSEND.

P. S.—It is very warm, with nothing but rain and mud. Bees are getting somewhat uneasy in the cellar, where I have all but one stock. Shall have to move them out if the weather does not change soon.
O. H. TOWNSEND.
Hubbardston, Mich., Dec. 27th, 1877.

At present I should say it was next to impossible to furnish more good dollar queens than will be called for next year. When we are unable to fill orders otherwise, we of course have to call on our advertisers. As this makes considerable complication, I would advise sending your orders direct to some one near you; if we all use imported mothers, there should be no great difference between the queens of one apiary or another. I should be glad to sell you a lamp nursery, but there has for the last year or two been a good many failures in introducing "just hatched" queens. Nuclei when first made give no trouble, but after they get to be tolerable colonies, many of the young queens are not accepted, or turn up missing for some reason or other.

Your P. S., illustrates the difficulty of housing bees with our uncertain winters. During the warm weather about the holidays, we heard from great numbers who had been obliged to carry out their bees, and many of them had suffered severe losses, in trying to keep them in. I would not confine bees to their hives in any way, and I do not believe I shall ever again carry a hive into a house or cellar. Excepting of course house apiaries, that allow them to fly out at will. Queens are sent right through from N. Y., without any changes, but if you are unknown to the agents they may be held until you can forward the money.

Friend R. I would not take $5,00 for that one word of information you gave on clipping queens' wings. I have had several big nice swarms do me no good after clipping the wings of the queen, but I never until now, knew the reason. I shall hereafter watch out about clipping young queens before they commence to lay.

Please tell me how to make them swarm early. My neighbors cry humbug to me when I ask them to subscribe for GLEANINGS; they have been swindled by patent hives until they are out of heart for any improvement in bee culture. I tell them, time will prove all things; their answer is, "all right."

My wife also can work with bees; one day when I was not at home, she put a ladder into a cedar tree, walked up and took a swarm down in her apron; you can tell whether she is afraid of bees or not. Some people think that everybody can't handle bees, but the reason is, they are afraid of them.

E. J. ATCHLEY, Lancaster, Texas, Nov. 9th, '77.

The very best argument with your neighbors will be perhaps, a huge crop of honey. And you can afford to keep still awhile, if you keep steadily at work. I am much inclined to think your wife will demonstrate that bees will pay for intelligent care, even if you do not.

CAUTION ABOUT FEEDING, ALSO SOMETHING OF MR. LANGSTROTH.

I commenced with one hive, 4 years ago, and had everything to learn. I increased them to upwards of 30, and reduced them by selling and doubling to about 24, without loss until this winter. During the warm weather I discovered that one had dysentery, and as an experiment gave it a pan of flour and syrup mixed, which they did not use up at once, so I left it in for a few days, and at the next visit I paid them found all dead; starved out and robbed; but the balance of my bees are all in good condition. I use the L. hive and prefer it to any other. I winter out doors with the outside frames replaced with close fitting frames sided with picture frame backing, stuffed with chaff, and lined one side with old woolen carpet. Over the frames I place one or two peices of old carpet, and on top of them a chaff tick about 4 inches thick. I place the hives about 6 inches apart in lots of 4 or 5 and pack leaves between, under, and all round except in front, then set corn fodder over the leaves to keep them dry, and in very cold weather put a little straw in the porticos. I live within about 200 yards of Mr. Langstroth, and am sorry to say that his health is very poor, and has been for some time. I have tried your fdn. and am well pleased with it, especially for second stories, and the thinner it is, the better. D. A. MCCORD.
Oxford, O., Dec. 1st, 1877.

Mr. Langstroth's home is here but he keeps no bees; and is only occasionally able, on account of a difficulty in his head, to consult with Mr. D. McCord, a near neighbor, about bee-keeping.
A. GRAY, Oxford, O., Jan. 2nd, 1878.

Should the above meet the eye of friend L., we hope he will excuse us, for publishing what was probably sent us without any such intentions. I have taken the liberty, because there are so many inquiries in regard to him, and because we are all glad to get hold of even the simplest bit of information in regard to his health, whereabouts, &c.

I began last spring with 20 good swarms, extracted over 6 barrels of honey or 2874 lbs. and increased to 86 swarms; have lost one since. I introduced some 45 queens, lost very nearly half in introducing. I am a new beginner, am told this has been a bad year here, do not know; I have compared my doings with others and think I have done well. I have very nearly all Italians, and attribute my success to them. Would like to know if I am doing well.
R. MARIONEAUX.
Plaquemine, La., Dec. 26th, 1877.

You have done remarkably well my friend, and I would warn you and other beginners, not to base your calculations on doing so well continuously.

PAINTING SECTION BOXES, &C.

My bees are wintering very nicely in cellars, thus far, with less dead bees than last winter at this time. Have sold all my crop except about 700 lbs. around home. Had 4500 lbs. to sell, all in section boxes and 40 lb. tin cans. I use a case similar to yours for shipping, and for the use of retailers, paint them green, as the honey shows better by the contrast. Can't the section boxes be painted with advantage to the appearance of the honey; say a cherry or walnut color? Perhaps the expense would be greater than the benefit. A. B. CHENEY.
Sparta Center, Mich., Dec. 29th, 1877.

I do not think it would pay to paint the section boxes, for almost everybody has a fancy for the clean bright pine wood. It is true, that where they are left standing exposed to sunlight and dust, the wood soon turns to a disagreeable and unsightly brown; but it must be our business to prevent this. Open only 1 box at a time, and take the sections out only as fast as sold. If any are to be kept over winter, leave them in the close fitting frames they are in when put into the hives, and keep the frames and all in hives piled up closely on each other. In this way the pine wood will preserve its bright clean appearance for a long time. If you see any on the market that have become old and dingy, possibly fly specked, take them home, or cut the honey out and sell it in bulk, rather than have any poor looking goods with your labels on them, before the people.

FRAME VERSUS BOX HIVES.

I have in all 40 swarms, one half in the L. hive. I had 20 last year, only 4 of which were L. hives. I put all my increase in the L. hives and got from every one of them 50 lbs. of honey all in slats; from the remainder in old box hives I did not get one lb. of suplus honey. I am going to transfer them in the spring as they are "no good" but to swarm. I put my second swarms in with the first, so I have very strong swarms to winter. I winter in cellar and they all come out strong and bright in the spring. I cover them with carpets as I like them best, so far.

L. A. FOSTER, Sidney Plains, N. Y., Dec. 16th, '77.

I commenced the season of '77, with 7 swarms in box hives, which I transfered to movable comb hives, and increased to 19 good strong colonies. I extracted 525 lbs. of honey, and italianized them all. Now, would it not be better to change queens once in awhile to prevent their becoming too closely related? Will they "run out" the same as hogs or sheep? I never looked into a bee hive until last spring. The season was very poor. W. L. DANIELS.

Hubbardton, Mich., Dec. 20th, 1877.

Italianizing will be all the change needed.

I am sorry you said that I said your things were "humbugs;" I said it, true, but only used this word as friend Betsinger had just used it. It sounded harsh and means more than I do, or did. I have used long hives five years, and like them. I have sold colonies every year, but never these hives: I like them for extracting honey, and for sections too. I had better success with sections, such as you use, this year, in "New Idea" hives than in any other. No brood nor pollen. A. J. COOK.

Lansing, Mich., Jan. 7th, 1878.

I beg pardon, friend C., for the liberty I took; I know that things in print often sound differently from what they would if we could hear and see the speaker. So many have written strongly in favor of the chaff hives, I wished to give the other side, with equal faithfulness.

I am very glad to get your favorable report from section boxes in long hives. Those who have them on hand, can perhaps use them rather than throw them away. Has any one else, succeeded with them for comb honey?

Last spring was so backward and rainy that bees did nothing until about the 10th of June. White clover was never better than this season, but the basswood, our main dependence, was an entire failure. It blossomed all right but yielded no honey. I put 41 stands in my cellar last winter. They came out all right except some which were rather short of honey, and 10 which were rather weak; one of the latter swarmed out and left me with 40 from which I have taken 2500 lbs. of honey; 1100 box and 1400 extracted, mostly white clover, the balance Spanish needle. I have now 72 stands ready for winter. I have used 10 or 12 lbs. of yellow fdn. mostly in boxes and like it so well that I shall get me a 9 inch machine and make fdn. to supply myself and neighbors. The box of honey that took the premium at the H. C. exposition was one that I had built from yellow fdn. the full size of the box, and I will say that I never saw box honey that looked whiter or nicer. There are in this little town 470 stands of bees, owned by 3 men. Mr. L. W. Baldwin, has 200, and took 6400 lbs. of honey mostly box this season, from 10s in the spring. Mr. I. D. Meadows, has 200 and took about 2000 from the same number in the spring, as Mr. B. The great difference in the amount of honey taken was owing to Meadows's not moving his bees, and partly from not giving them the proper care. I have a Barnes' foot power saw, and have had it all summer but have never been able to cut 8 feet a minute; no, nor 4 feet a minute. I think it a very good machine for men weighing 200 lbs. avoirdupois. I weigh but about 140, but still I like it first rate.

F. J. FARR.

P. S.—Tell Mr. Salisbury to come down to Independence, and he may see an apiary that looks as well as Hayhurst's. I refer to L. W. Baldwin's 200 hives all in straight rows, not purest white, but several colors. F. J. FARR.

Independence, Mo., Dec. 17th, 1877.

Our bees have carried in pollen every day since the 6th, of Dec. The weather has been very fine and bees are in fine condition, all wintering on their summer stands, none with even a honey board on the hive. I examined several and found brood in two different combs. No bees have died in the hives up to this time Dec. 14th, 1877.

A. F. MOON, Rome, Ga.

I have 17 colonies all in chaff hives—guess they are all O. K. Many people here laugh at the idea of going to so much expense for the little "fellows," but I like honey; besides that, my principal expense was getting the first chaff *hive* from you. I made all the rest myself, so they did not cost so much after all.

W. B. SHOEMAKER.

Newville, Pa., Jan. 3d, 1878.

I am a new beginner in bee culture, having commenced 2 years ago. I started with three stands of black bees, and have increased to 41 stands, three of which are Italians; the rest are hybrids. Have them packed in chaff on their summer stands.

CHARLES SHAFFER.

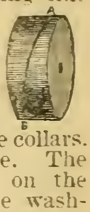
Potsdam, O., Dec. 12th, 1877.

WABBLING SAWS, &C.

I have bought a Barnes' saw and would like a little instruction in regard to setting the saw wabbling. I have sawed about 120 frames with it and like it very well. You got a little ahead of me on nailed frames; I had just been trying to think of some way to make a dovetailed joint, and put a small brad in. I shall use strips of tin to hang the frames on. This has been the warmest and wettest Dec. I ever saw. Bee folks who had put their bees in cellars and houses had to get them out for a few days. I kept mine in till the temperature got up to 56° before they made any fuss, then I set them out for a few days. It is some colder now, the thermometer has been standing at 40° and 42° for the last week, in the cellar. I have 2 rip saws, and for cutting grooves in the ends of frames, I put on both saws with a paper collar between, and it is just right. I made a pattern with a tongue that would run through the grooves easily and set it ⅛ inch from the saw, I run the grooves over that and it goes tiptop.

V. W. KEENEY, Shirland, Ills., Jan. 4th, '78.

Although it is a very simple matter, indeed, to make a wabbling saw, it seems many of our friends do not get the idea. If you lay two shingles together so that the thick end of one is against the thin end of the other, and then cut a pair of washers out of both, you will have something like the cut here given. They are in reality a couple of thin wooden wheels, thick at one edge, and thin at the other. Now if you slip them on the saw mandrel, with the saw between them on the line A B, and then screw the whole up between the collars, your saw will of course wabble. The amount of wabble, will depend on the amount of wedge shape you give the washers. A very slight wabble will make a broad saw cut, while a broader one, will answer for the hand holes in the Simplicity hives, or for grooving out the 5c. feeders. For a broad wabble, an extra table top will be needed, unless you have Barnes' improved saw which has the halves of the table made to be moved apart.



Our Homes.

Create in me a clean heart, O God; and renew a right spirit within me. Psalms, 51; 10.

ONCE more, my friends, I shall have to ask your pardon for talking about myself. You see, the trouble lies just here: if I should use other peoples' lives for illustrations, they would——well, I do not want to use other peoples' lives, even if they should prove more charitable than I imagine; but if a few chapters from my own can be of any service, I cheerfully give them.

When I was about 10 years old, as nearly as I can remember, I asked my father if any piece of copper of the size and weight of a penny, was worth as much. The reason for this query was that I had found an old piece of thick copper, that I thought might be utilized in such a way as to increase the amount of specie in circulation; and although I cannot remember what was my father's reply, at the time, I do remember very distinctly, that I soon had a penny rudely fashioned from one corner of the sheet. To make it look natural, I rubbed over the bright places, and soon started for the village store, to see if it would pass. I can very well remember that as I trudged along with it in my pocket, my conscience was not quite at ease, as I thought over the gentle remonstrances my kind mother had made to this latest project.

The merchant was a kind old man, whom I had known long, and as I quietly gave my order for a "cent's worth of licorice root," I felt that I would give a good deal of hard work, for just one real genuine penny in place of the one I was at the moment fingering in my pocket. My conscience smote me still more, when he returned with one of the very largest "cent's worth," but there was no help for it then——stop! there was a help, and there always is for *every* such contingency: telling the plain truth. Had I said,

"Mr. Mead! here is a penny I made myself, out of an old piece of copper, if you do not wish to take it, I will leave my licorice until I go home and get a good one," oh, how differently I should have felt. I should have had to own up to my mother in a humiliating way, it is true, but she would have given me a good penny to keep my name good and untarnished, in an instant, and all would have been well. I was far too cowardly to do this, and as I took the nice bundle he had fixed up for me, I extended the fraudulent coin. He took it, looked it over, scanned the fresh marks of the grindstone I had used to make it round, and then looked at me inquiringly. Now I wish to stop long enough, to say that everybody called me exceedingly honest. My mother, grandmother and the neighbors in general, had so often said that I was honest, that I fear I had begun to think my reputation was so good, I did not need to take any particular pains in regard to it. Well, something had to be said, as the kind merchant's eyes were turned full upon me. Did you ever notice how Satan blinds our better judgment, when we are once enlisted in his service? I have sometimes imagined him shaking his sides with laughter, at the miserable subterfuges and pretexts, that his victim tries to take refuge under.

"Is not the penny a good one?" said I, trying to feign surprise. Now this was an indirect falsehood, and paved the way for a greater one, so it was nothing very strange that I immediately added,

"I took it for good, anyway."

"Have you not another cent my boy?"

"No."

Dear reader, did you ever feel what an inexpressible relief it is to tell the truth after you have been driven into falsehood by Satan or some of his allies?

"Well, you can take the penny and the licorice both, and bring me a penny when you get one. Will you not?"

I drew a long breath of relief, as I promised, and walked out of the country store joining my companions. Why do we sin when sin brings so much trouble, and virtue makes everything so peaceful? I believe I fully intended to pay the money when I promised to, and was glad to be let off so easily. As I look back through the years that have passed since then, how I do wish that some kind friend could have taken me in hand kindly and firmly, and told me what wicked strings of falsehoods I had been telling; what a dishonest, selfish and greedy spirit I had shown. I had taken the poor man's goods, had told him falsehoods, and yet he had been so kind and lenient. Even now, when I had but just escaped, as the boys gathered round me and asked if "it passed," I listened to the suggestion of one more hardened than the rest, when he said,

"The old curmudgeon, I would never pay him, just for his being so mean."

My friends, you have a pretty good opinion of me, but to confess the truth, that debt has never been paid. I did feel troubled about it, and afterward spoke of it to some boys who were older and better dressed than myself; but when one of them laughed and said he would never think of paying it, and the other said he *never* paid little accounts like that, I dropped the matter and thought I would be like the rest of the world and save these little dribs. Since my conversion three years ago, these little things have been coming up. If God is to create in me a clean heart, I must make reparation for all these items, and I tell you there is no danger that we shall ever do our part of the work too well. That was 28 years ago, and the interest on the amount for that length of time, would be about 16 cents. If my old friend should still be alive and see this, he would do me a favor by dropping me a postal card.

Now, I cannot begin to tell how many falsehoods I have told and acted, in all these 28 years, but as soon as memory recalls one of them, I am making it a point to straighten it up, so far as lies in my power. At the time of my conversion, I saw a great task before me, but as I commenced weeding, I could look back and note the progress I had been making from time to time, and once in a while, I would look forward, and say, "when I get that, and that, and that bad habit down, I shall have a pretty fair character;" but behold, when they were out of the way, another loomed up more hideous than any before. But as there was no other way, at it I went, trusting that with the help of that Great Friend, I could do something, at least, in the cutting down of those fearful hills.

In regard to the falsehoods, after some bitter experiences in which I did not get off as easily as in the one I have mentioned, I became afraid of telling anything but the truth, or rather, perhaps, I became afraid of telling anything that it was very probable would be found out. Perhaps I am censuring myself here pretty strongly, for I did go to Sabbath school, and for several years, tried in a sort of a feeble childish way to have the fear of God before my mind, rather than that of man. But after I had done a wrong, I had a sort of way of very easily getting over it, without making any substantial atonement for the wrong I had done, more than I did to the man for his licorice. It was only a few days ago, that I remembered subscribing for the Scientific American for 6 months, when I was 16 years old. They made a mistake, and sent it for a whole year. It took me just 22 years, to come to the conclusion that I owed them a dollar, but I did send it as soon as I saw the matter clearly. I did not send them any interest because the mistake was of their own making and not mine.

Twenty years ago, while in Wood Co. in this State, a young man of about my own age, very kindly loaned (or what amounted to the same thing) me 50c. I somehow got into a "saving" mood, and slipped out of town without paying him. After my conversion, I wrote the P. M. there, inquiring for him, but had to give up the search. We have now, subscribers there, and possibly some one may know him. If so, it would afford me great pleasure to return that half dollar with compound interest. I am not really sure after all, that it is a pure motive that prompts all this vehement desire to straighten up these things, for I have often feared somebody would get hold of the story, and tell how I went off without paying my just debts. A very few days afterward, I helped to rob a strawberry patch in a quiet cottage garden, and let all the boys who went with me. out and back again, through the window of my room at the hotel where I was stopping. We succeeded in this so nicely, that I almost decided to get out through the same window, and go off with a board bill unpaid. I presume I should have done this, but the landlady was a Christian and had been very kind to me, and although I had on one of my "saving" fits, there was a little left of conscience away down somewhere; and besides, I happened to think of what my mother would say, if she ever heard of my doing such a thing. You see I had robbery in my heart, but I was rather afraid to do it. I should be glad to repay the man for his strawberries too, but I fear I shall never be able to do it. Perhaps I am picking up small and unimportant items, and making a great fuss about them, when there are hundreds of dollars left out of sight and unadjusted. I have thought of this, but I believe I am honestly doing the best I can, and though it were a sudden streak, or a new hobby of mine, I do not believe it would do any harm if we should all get a mania of paying up all the little debts we honestly owe, no matter of how long standing. As it is very difficult for us to see our own faults as others see them, it is quite likely that I have shown this "saving" disposition at times, scarcely knowing it; and my friends, please do not judge me too harshly, if you have seen it at times in your business relations with me. I have told you once before, my streaks of honesty are very apt to come by sudden impulses; well, I fear that streaks of selfishness come by impulses also, but I thank God, that he has pointed out a clear way for us to go pretty safely in all these matters. To illustrate: during our revival season last winter, a methodist brother proclaimed pretty loudly in one of the meetings, that if he had wronged any one, he would restore seven-fold. Some of the skeptics took this up pretty vehemently, because, as they said, the speaker had wronged a great many, and obstinately refused to set the matter right. I went to him, and remonstrated gently, on such public statement in such strong language.

"Why brother Root, I *will* restore seven-fold to any one I have wronged. Just point him out to me?"

I mused a moment pondering what would be the best course to take, when a bright thought struck me.

"Brother T., who is to be judge as to whether you have wronged anybody or not?"

"Why *I* am of course; you do not suppose I am going to let any man help himself out of my pocket do you?"

I was obliged to indulge in a hearty laugh, for the sentence so completely showed up poor fallen humanity, and gave a view of both sides of the picture at once.

I did not scrape up wit enough just then to point out the directions the Bible gives for such cases, but inasmuch as both parties to all these troubles have their eyes more or less blinded by selfish interests, I think it a Christian duty, to call in some good man or woman who is a friend of both, and a friend of all humanity; one who is a consistent Christian, and of course an earnest peace maker. I would advise you to take all such troubles if you can, to your minister; and then comes the test of *your* Christianity, if you have any. If you are a Christian, or even a reasonable man, you can find some mutual friend; and now let me entreat you, if you have any respect whatever for your word, after you have agreed to abide by his decision, do just exactly as he says, no matter what it may be, and after it is over, do not let one single word in the way of a murmer, escape your lips; no, not even to your wife or family. If your opponent will not agree to any kind of arbitration, it may be best to have recourse to the law, if the matter is of sufficient moment.

I have often been pained at the harsh words and complaints we so often hear against the railroads and express companies. I know there is corruption among them, just as there is in my own heart, as I have been telling you; but, my friends, kindness and gentleness, is *so much* the better way, even if we have been wronged. I have had much business to do with them, and I know something of the overworked condition of many of their employes; I also know how ready we all are, to accuse them of willful dishonesty, when the wrong has only been a mistake. You do not know what a pleasant thrill it gives one, to find that there are soft and tender hearts amid the din and bustle of these great avenues of trade and travel.

The first two barrels of grape sugar I got from Davenport Iowa, came by the way of Columbus O., by some awkward management, and the freight was nearly 1 cent per lb. I got our agent to look the matter up, and had the next lot shipped for only 40c. a hundred. The freight bill on the 3d lot, was only about 20c. per hundred, and after it was all paid and settled up, I took another look at the bill, and found they had carried out the weight of the 2 barrels, as 400 lbs, instead of 400 for each barrel, or 800 in all. As a matter of course, I kept very quiet about it, saying inwardly, "There! that will help to make up for the amount I paid you for bungling the first lot away off around by Columbus," and I, with much satisfaction, tucked the bill away in its proper pigeon-hole. During the day, and for many days afterward, my eye kept wandering toward that pigeon-hole.

"Create in me a clean heart."

David did not say a tolerably clean heart, but he said, "Create in me a *clean* heart, O God." Well, I made up my mind that my heart would at least be cleaner, if I told the R. R. Co. that they had made a mistake of 400 lbs. in that freight bill of sugar, no matter how much they had overcharged me on similar bills. I showed it first to our friend Charlie, the drayman.

"Charlie will you please take this freight bill down to the agent, and tell him the sugar weighs 800 lbs."

"Why Mr. Root, you are foolish to say one word about it. I tell you, all you can get out of the R. R. Co's, you are safe in taking."

I talked with him some about it, and he took the paper. He soon returned it, saying the agent told me to keep it; it was all right. A few days afterward I was at the depot, and stated the case to the agent. He looked at me in some surprise.

"The Co. does not owe you anything?".

"No; they have not had enough pay for bringing the sugar."

"Well let it go; I will stand responsible, and take all the blame."

"Will you tell them of the mistake?"

"No, it is not our duty to do so; they have had all the money their bill called for."

Just about here, I began wondering if the agent was—well, I wondered if he was one that loved the Bible, for I feared if he were not, he might think I was wasting time foolishly. His clerk, I knew was in the habit of coming to our Thursday evening prayer meetings, and I turned appealingly to him. Said he,

"Mr. Root, if they ever find it out, and send in a bill for the balance, we will pay it. That will make it all right will it not?"

I explained as well as I could, that such a course would not give me a clear conscience, and at my request, they promised to send a tracer after the mistake. A few weeks after, I enquired and learned no tracer had been sent. Said the agent, good naturedly,

"Mr. R., I think it is all foolishness."

But I prevailed, and the bill was returned for correction. A few days afterward, Charlie came in looking very pleasant and knowing, as he handed me some papers. The agent had written simply,

"Is there any mistake in this bill?"

The answer came,

"None at all; it all foots up correctly."

When I saw the agent I asked,

"Did you explain on the tracer that the sugar weighed 800 lbs. instead of 400?"

"No; that was none of my business. I asked them if there was any mistake, and they said no."

They had a good natured laugh at the trick they had played on me, and I began to think I should have to give up. A brother-inlaw, is a railroad man, and I appealed to him. Said he,

"Yes, you can write to the Co., but the man who made the mistake will deny it, because if found out, he will lose his place at once. You had better let it alone, and keep the $1.60."

"Then the R. R. Co's, do *try* to avoid mistakes and inaccuracies?"

"You had better *try* making mistakes while in their employ, if you have any doubt in the matter."

Everybody seems to be down on railroads, and if they are wronged, too often, we do not stop to think it may be unintentional, but pitch into them in a way that will be almost sure to make them feel they have to fight for every copper or they will be robbed on every hand. No wonder they looked astonished and thought I had lost my senses when I told them they had charged me too little for bringing my sugar. I presume nearly all of us have at one time or another been passed by the conductor, he forgetting to take our ticket. Is it right to give him the ticket to ride over the same route at some future time? From nearly all to whom I have propounded the question the answer has been, "Why of course it is; the ticket is good until he takes it up?" Sometimes the conductor misses you entirely; is it your business to tell him you have paid nothing for your ride before you get off? "Why no, certainly not, it is a rail road Co., and they always swindle you every chance they can get."

My friends, I am afraid they will always keep on swindling us, if we treat them in that way. Our business with them and the express Co's is, as you know, of a nature and extent, that gives us a pretty good idea of affairs, but I do not think their mistakes are at all intentional. When we send two frame nuclei by express, the agent, instead of keeping the combs upright, will clap the hive down on its side, on the counter, with force enough to break the combs out, it is true, but I do not feel hard toward them on that account; I try to think they are tired and hurried, and do not know that bees and combs are fragile. We now fix them so they cannot well be turned over, and label them in large plain letters. All the employes that I get acquainted with, very soon show an interest in our business, and seem really anxious to assist me, in every way they can. Is it not because I show an interest in their welfare? As ye would that men should do unto you, do ye even so unto them.

Did you ever realize how very hard it is to keep free from these selfish and sinful impulses? If one has but little to do with trade and traffic and many people, it seems to me it would be easier; but where responsibilities are many and varied, and where one has all sorts of people to try to harmonize and all sorts of things to adjust, where money must be received and paid out, unceasingly, I see much in my own heart that reminds me of the penny transaction of my childhood. It is true I do not tell point blank deliberate falsehoods as I did then, but strive as I may, I cannot look back on a single day, and feel that I have, in *every respect*, had that clean heart that I get bright visions of, now and then. I am not despondent, nor discouraged, for often amid my busy cares when I have forgotten my own in trying to help some one else, or when I have in my feeble way turned the other cheek also, I can almost hear in plain words, "Well done, thou good and faithful servant," and as I lie down at night, how fervently can I thank God that even though I have done but poorly, there has been no settled purpose of evil as in the old life, but that I have earnestly tried all day to do right. There is now none of that heavy load of guilt there was then, and I am not afraid as I was then, because of the awful inconsistency, to say with bowed head, "Create in me a clean heart, O God; and renew a right spirit within me."

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, FEB. 1, 1878.

And if ye do good to them which do good to you, what thank have ye? for sinners also do even the same. Luke, 6; 33.

◆

GRAPE SUGAR. We can now furnish it here, at 3½c. by the barrel, 4c. in boxes of 50 lbs, or 5c. for a single lb.

◆

WE can use postage stamps of any denomination, but just now it would be a favor if our friends would send us some 1 cent stamps, where they can just as conveniently. We use many thousands, in sending away sample copies.

◆

FRET SAWING for Pleasure and Profit, is the title of a very pretty little book that tells all about the work, even to the making of a machine itself. By Henry T. Williams, of N. Y. We have added it to our book list. Price 50 cents.

IF you should happen to have a friend who would like any particular No. of GLEANINGS, send us his name, and it will be mailed him without charge. Or should you give away any of your numbers to those who you think might subscribe, drop us a postal, and we will send you a new one in place of it.

◆

OUR neighbor Shaw, bought several barrels of grape sugar, but the weather became cold before he could get them fed. He tried lumps over the cluster, as we feed candy, but they preferred their honey; so he took all the honey away from a few colonies, and gave them dry combs, with lumps of grape sugar on top. They went up among the lumps, clustered on them, and did not die at all. Hear what he just writes:

"Bees wintering entirely on lumps of grape sugar are all right yet, and have been flying nicely for a few days." F. R. SHAW,
Chatham Center, Medina Co., O., Jan. 21th, 1878.

Now it will not cost as much as 50c. to winter these bees, and perhaps not over 25; but wait and see.

◆

SOME complaint has been made about our price, of 20c. per line for advertising. If 10c. was all right when we had only about 1000 subscribers, ought we not to have more when we have double the No.? I fear you forget my friends, that it has cost me hundreds of dollars to give GLEANINGS its present circulation. Again; if I advertised patent hives, patent medicines, electric belts and "such like," I presume I could take ads. at a much less rate; but if I make myself personally responsible for my advertisers, examine and test their goods before their ads. are taken, I cannot do it at a less price than present rates. If it will not *pay* to advertise at these prices, then do not, by any means, advertise, and we shall have all the more room for "bee-letters."

◆

FRIEND DOOLITTLE says in the *Magazine*, that if frames of section boxes are put in the lower story with nothing but the tin separators next the brood, the bees will store pollen in the boxes. With his deep frame and large sized sections, very likely such will be the case, unless he uses his wood division boards, but with our small sections, and the shallow L. frames, we have never seen one cell of pollen; neither have we had a report of any, so far as I can remember, when used with the separators. The matter is very easily tested by hanging a frame in your hive, and if you should, in your locality, find any pollen in the sections, you can easily put in a thin wooden division board. Mr. D. admits that the bees go into the sections much quicker without the division board, if I have correctly understood him.

◆

SOMEBODY scolds because he did not get his Dec. No., and tells us to keep our books straighter; another says we did not put as many pages in his Journal as in his neighbor's, and asks why such partiality. Gently, good friends; sometimes the papers we mail with all faithfulness, fail to get into the hands of the owner, by no fault of our own, and if we left out any pages, no one could be more sorry than myself, for it is one of my keenest pleasures, to hand over to you all, the very best Journal I can make. No matter whose fault it is, we are always ready to send another just the minute we are informed of the lack. In a large number of the complaints, we have found that some one of the same name, has taken them out of the office. Do not hesitate to speak out, but remember the blame may not be ours, and speak kindly. I will "scold" the folders and binders about leaving anything out, just as hard as I can, and do it pleasantly.

◆

I wrote to N. C. Mitchell of Indianapolis, Ind. and all the satisfaction I received was the answer that the adjustable bee-hive was all I wanted for the wintering of bees. Accordingly I purchased one of his farm rights for five dollars, made six of them last spring, put in six good swarms, and followed his directions strictly, to see if there was any good in the hives; but they proved to be the greatest humbug I ever met with, though at the same time it may be a good hive to winter in. G. C. MORGAN.
White Mound, Wis., Jan. 16th, 1878.

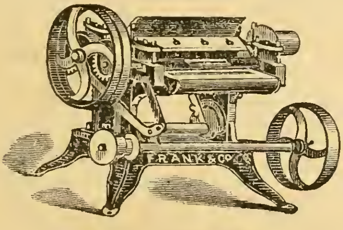
☞ *You have sent me, my friends, toward a thousand subscribers, during the past month; I might say "thank you," and I do say, and feel it, but I think something more is due you, and as actions speak louder than words, I have given you the following pages. I do not know how I can please the greater part of you more, than by telling you how to make section boxes, and if I furnish the paper and printing myself, I presume you will allow me just as much "elbow room" as I please. I wish to have a "big talk and visit."*

SECTION HONEY BOXES.

ALL ABOUT MAKING THEM, AND SOME OTHER MATTERS.

SOME of our friends complained last season because our sections were grooved a little deeper than the thickness of the stuff; this was done, because in sawing, we cannot get the stuff all exactly of a thickness, and we were therefore obliged to make the dovetailing deep enough, to take in the thickest pieces, otherwise, we should have the thick pieces increasing the outside dimensions of the box, and this might prevent a nice fit inside of the large frames. The only remedy was to have the stuff planed to an exact thickness, and although we often thought of this, we as often decided that they could not be made, nicely planed all over, for one cent each, or less. A few weeks ago, our sawyer startled me, by asking why we could not have a little planer, to take long strips right from the buzz saw, and plane them automatically. Sure enough! Why not?

I soon found that there was a little planer made, called a Cigar Box planer, and ere long, we had one planted just back of the saw. I give you an engraving of it below.



CIGAR BOX PLANER.

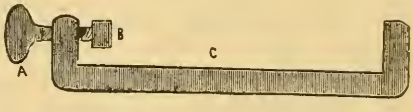
This little machine does its work most beautifully, and requires so little power for the planing of these pine strips, that in the absence of other power, one man with a crank, would probably run it without trouble. After we got it well started, our sawyer, who is an intelligent mechanic, exclamed,

"Why Mr. Root, I would almost work for nothing, if I could have machinery that would all run as nicely as that little machine does."

The strips, as they come out, are most beautifully smooth, for these small planers, as they come from the factory, are all sharp and in working order, without so much as even furnishing a belt. The best part of it is, the strips are *exactly* of a thickness. For the usual section boxes, they are sawed about 2 inches in width, or a little more, and in length, to suit your pleasure.

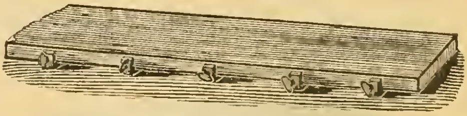
To get a fair view of all these points, I shall have to explain a little; the cheapest shape in which we can get our white pine lumber, is inch stuff. Two inch might do, were it not that we cannot get it unless sawed to order, in shape to dress full 2 inches. It is true, we can saw it in strips a little more than 2 inches, and then turn them up edgewise as we do the inch stuff, but 2 inch stuff costs quite a little more than one inch, for the same quality of lumber, and as we use inch lumber for general hive work, I think we had better have our lumber pile mostly inch pine. Very well; now what length of boards would we better purchase? As there is always waste near the ends, I think 16 feet will be safest in general. These 16 feet boards, we will cut up in lengths convenient to handle; if you can handle them cut in two in the middle, it will be quite a saving in lumber and handling, but it may be best to cut them in 3, 4, or even 5 equal pieces, under some circumstances. After the boards are cut up, and put in nice piles conveniently near the saw, we are ready to saw them into strips. For the sides of the section boxes, we wish the strips 2 inches, or a fraction less, but for the top and bottom, they are to be ¼ inch narrower. Therefore, we need an equal number of each width. We are now ready to rip off the thin strips. I think these would better be, when dressed, nearly 3-16 thick, after they are planed; but there comes in a consideration that decides this point, a little further along.

We will suppose you have ripped off and planed about 100 of these thin strips; 101, is just the number, to be exact. Shake out the shavings, place the planed surface all one way (we do not want the sections planed on their inner sides, because the bees could not so readily attach their combs) and then screw them up in screw clamps like the cut below.



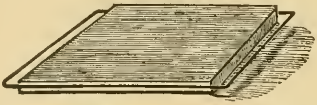
CLAMP FOR MAKING SECTION BOXES.

These clamps are made to compass just 16 inches. You will remember that the frame we use to nail, and gauge the size of the simplicity hives, is just 16 inches wide; just bear it in mind. Below, we give you a drawing of the bundle of strips, with a clamp screwed on them, at about every 18 inches.



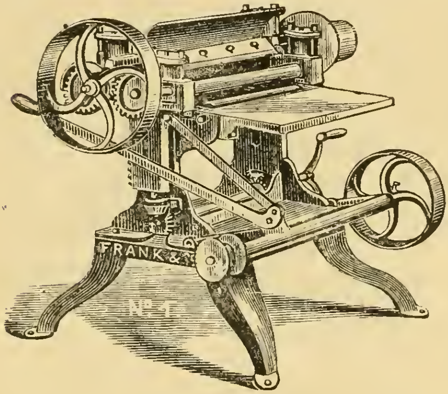
BUNDLE OF STRIPS FOR SECTIONS.

Well, this plank as it were, composed of the 101 strips, is to be placed on the saw table, and sawed into bolts or bundles, a little more than 17 inches long, one of the clamps coming near the center of each. Now you are to slip one of the iron gauge frames over the bolt, and loosen the clamp, until it springs out securely into the frame, as below.



BOLT OF STRIPS READY FOR PLANING THE EDGES.

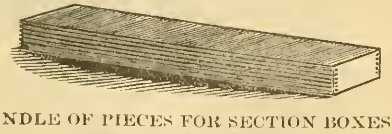
These bolts after being all "hooped" and piled up in a nice square pile, are ready to be planed, that the edges of the sections may be smooth, and brought to an exact thickness; you see we are going to have nice accurate work, even if we do commence with rough lumber. Our cigar box planer is hardly large enough to plane these bolts, we therefore use what is called the 18 inch Lilliputian, shown below.



LILLIPUTIAN PLANER.

These small planers have astonished us by the beauty and accuracy with which they do their work, and the small amount of power with which they may be run. Our machinist, said he did not think we could plane a 16 inch board, with a 4½ horse power engine, but with only 40 lbs of steam, we cut a full ⅛ inch from the hardest and knottiest board we could find, and the planer did not even slack its motion. As the machine cost us, all belted and ready for work, only $70.00, we were very agreeably astonished. The 2 horse power engines we advertise will carry them without any difficulty at all.

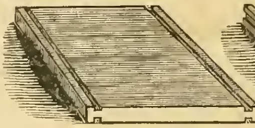
After the tops and side pieces are all planed to the exact thickness you wish, you are to put 4 of the clamps on each bolt, so spaced that you can run your saw between them, cutting off bundles of 4¼ inch pieces. These are now to be run over the gang of grooving saws and they are finished.

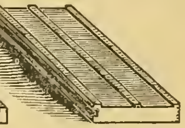


BUNDLE OF PIECES FOR SECTION BOXES, AS THEY LEAVE THE SAWS.

These bundles contain, each, 101 pieces. I would insist on this exact number, to save mistakes that will creep in, if you have any odd number; for the figuring necessitated with fractional parts of a hundred to put up an order, may amount to more than the goods are worth, and even then, expensive mistakes will happen. Last season, a bee-keeper away in Iowa, informed us, just about swarming time, that his box of 1000 sections was lacking either sides or tops, and it cost us several dollars to make the matter straight, express and all. Now if we always have 101 in a bundle—the odd one is to be sure to make good count—and then make our packing boxes so that 20 bundles will just fill it, our shipping clerk cannot well make a wrong count. They are put up ready to ship in boxes of 500 each. But he may give us too many tops, and not enough bottoms? That is true, and it reminds me, that the pieces for the tops are to have a thin saw cut exactly in the center, the whole length, before they are screwed up in the bundles. Well now, to fix it so he *can not* make a mistake, we will put in each of the bundles of narrow pieces, 51 grooved, and 50 without the grooves. Then, in packing, he is to get 10 bundles of the wide side pieces, and 10 bundles of the narrow ones, and the packing boxes are to be made so as to hold just these and no more. As to the thickness of the strips, I would set the planer so that 101 pieces, just fill the 16 inch frame when screwed up close enough to hold. You can tell this best, by trying, and after you get your planer just right, make a mark, so that you can set it in just the same place again. I said the width of the strips should be a little less than 2 inches; we want them so that 7 of them close up side by side, with the 7 tin separators between them, will just make 14 inches. The Simplicity hive is 14¼ inches inside, and we shall therefore have the ¼ inch to wedge up the frames of sections. When they are to be removed, take out the two wedges and the first frame can be lifted out easily. The tops and bottoms of the sections, are ¼ inch less than the sides.

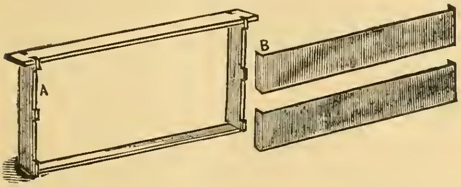
The cases for holding the sections, or the broad frames that hold these, are made with the same tools, and much in the same way. Instead of 101 in a bolt, we have just 50, so they are twice as thick as the section stuff. The bottom bar is made exactly like the bottom bar of the sections, grooving and all. The top and sides, are the thickness of a sheet of tin, thicker than the sides of the sections. This makes them come tight against each other, when wedged up in the hive. Below, we show you a bundle of finished top bars, and also one of the side bars.





BUNDLE OF TOP BARS. BUNDLE OF END BARS.

The grooves in the sides of the top bars, and the one in the ends of the side bars, are cut with a Cutter Head, to be described further on. The broad grooves in the side bars, are for the purpose of bringing the tin separators into just the right place, and for letting them in flush with the wood, that the frames may come up tight. Where the tin comes between the frames, and separates them but a trifle, the bees will fill in the crack with propolis. We wish to stop all this so far as we can. The cut of the frame below, will give you an idea of the way in which the separators are put on.



BROAD FRAME TO HOLD 8 SECTIONS, AND TIN SEPARATORS.

The tin is so cut, that when a ⅛ fold is made on each end, it can be just snapped into the notches at A and B. They can be used without tacking, but those we ship, are tacked fast with four slender brads. The tin should be stretched on the frame, to prevent its bulging, and making depressions and elevations in the comb honey.

The shallow notches are very quickly made in the bolt of end bars, with a common rabbet plane. To guide it in the exact spot, and to have it cut the notches of the proper width, a frame of strips of board, is placed over the bolt, which guides the plane.

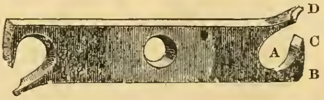
A great many, at first view, ask why we do not use solid plank, and rip off the strips after having done the grooving, etc. The great reason is, that we should be obliged to rip off these little pieces one at a time, and then handle them singly to plane, and tie up. With the plan I have given, we rip and plane about 25 pieces in a strip; when bundled up, we cut off 100 at once. This means, 100 cuts one way, and 25 the other, 125 in all, make 2500 pieces; by the other plan, the workman would have to make 2500 movements. This system of working in wood can be used in making boxes and frames of almost every description, and for a great variety of wood work, where great quantities of pieces are wanted, exactly alike and at a very low figure.

Now, about grooving the ends of the pieces, or the dovetailing, as it is frequently called. A year ago, I told you how to saw one or two grooves at a time, by means of a steel track parallel with the saw, on which the first groove runs as soon as it is sawed, as a guide for the rest. This plan does very well, but it is slower, and not as accurate, as when we have a gang of 8 saws to cut the whole number at once. The saws we use are 4½ inches in diameter, and about 3-32 in thickness. They are run by steel washers between them, that gauge the tightness with which the sections fit together. If they are too loose, a washer of thin paper put between them, will make them tighter. The saws are sharpened like a rip saw, but they have no set. They get dull very quickly, for cutting constantly in the end of the wood, is very severe on saws. A 3½ or 4 inch belt will be required to run these saws, and the pulley should be not less than 3½ inches in diameter. The shaft should be about 1 inch in diameter, and should run in broad strong boxes. It may be ¾ in., where the saws go on. As these saws must cut always the same width, exactly, it is best to run them without set; and to make them "clear" in this shape, we have them ground thinnest in the center. Such saws 4½ inches in diameter, are worth about $2.00 each; a steel washer 50c more, and a suitable mandrel and boxes $10.00. Therefore the whole outfit with 8 saws, will cost about $30.00. I confess, I am not very well pleased with any of the grooving arrangements I have ever used. They answer very nicely at first, it is true, but they need so much filing or grinding, that it is quite a task. They all work nicely running with the grain, or across the grain, but cutting into the end of a block, seems to be a different matter.

If we wish grooves and tenons more than ⅛, say 3-16, the Barnes' Cutter Head, is an improvement. These require sharpening frequently, it is true, for they are like a saw with but two teeth; but they clear so nicely, it is really a pleasure to work with them. Perhaps I should say when they are in proper cutting order, for neither a saw, cutter nor any thing else is pleasant to work with, unless it is sharpened just as it should be. It is no use to say you cannot sharpen a saw, for you *must* do it, or you are not fit to be a bee-keeper. Perhaps I can help you a little.

PUTTING CIRCULAR SAWS IN ORDER.

We will take the Cutter Head, for an illustration, for it embodies nearly all the principles involved.



CUTTER HEAD FOR GROOVING SECTION BOXES.

The point or spur D, is of course, to cut a little ahead of the chisel shaped cutter C, and is to gauge the exact width of the groove, while C, follows after, and takes out a shaving of wood. Now suppose the tool be so carelessly ground that the heel B, is higher, or rather farther from the hole in the centre, than the cutting edge C; it is very plain that the heel would only rub on the wood, get hot, and make things smoke, without doing any cutting at all. At about this stage, the operator of the foot-power saw, is in danger of losing his temper, especially, if he has tired himself out, and worked himself into a perspiration, without stopping to examine into the matter. To illustrate, I will give a letter that Barnes Bro's wrote us, after one of our customers had complained of his Cutter Head.

> We mail you this A. M. the cutter-head that Mr. ——— returns by our request, for our examination. He has ground it, or sharpened it from the outside, and spoiled it of course. It should be ground or sharpened from the inner edge. Please put it on the saw and you will see that the edge is ground down so that the part back will not let it cut; hence the jumping he speaks of. You will also see that it has never been sharpened on the inner edge, the temper color has not been removed. We would as soon tell a man to hitch to the tongue of a wagon, after selling him one, as telling him to not grind

these cutters on the outer edge. You will find, on grinding back and allowing the edge to be the highest, as it was originally, that this same cutter will beat the best saw, (especially when gauged) cutter or groover you can get. We like fair play, especially when things are so plain as to need no explanation.

If you have time, we would like you to write him, and after grinding the cutter properly, return it to him to convince him W. F. & John Barnes.

Rockford, Ill., Sept. 11th, 1877.

That the above is somewhat harsh, I am aware, but I have given it you to show that I think there is blame on both sides. Our friend was thoughtless, it is true, but had the cutter been sent him, ground just as it should be, at first, he would have succeeded and been pleased; and if it afterward got out of "rig," he would have known the fault was not in the construction of the implement. I have purchased much machinery, and I am sorry to say, but little of it has been in really nice working trim when first received. The planers I have mentioned were a pleasant surprise in that respect, for they were almost as sharp and keen as a razor. and every part was as carefully in order as if the maker had fitted it up for his own use. If all kinds of machinery were sent out in just this shape, it would save ever and *ever* so much trouble and bother, and hard words and feelings all round. I know it costs money to do this, and I know it is hard to find a man who will take pride in having everything just right, no matter what the cost may be; but it should be done. There will be no difficulty in getting a price to cover all expense, after the work has once earned a reputation.

About two years ago, I paid $120.00 (½ in advertising) for a foot-power saw, thinking I would get something extra nice, and accurate. It was the most rickety and unfinished piece of machinery, I ever saw; and after considerable more time and money spent in trying to rig it up, I offered it in vain to the makers for $50.00. This machine was from the Combined Power Co., 13 Dey St., N. Y.

The Cutter Head was received, as it was stated. The blue on the steel, showed that no file or stone, had ever touched it on the inner edge at A, but our friend had ground the outside, in the manner stated. I took the tool to one of our hands, who runs saws, explained the matter, and desired him to fix and try it. As it did not cut very well, I stopped it and looked, and behold, *he* had not even taken the blue from the steel on the inside.

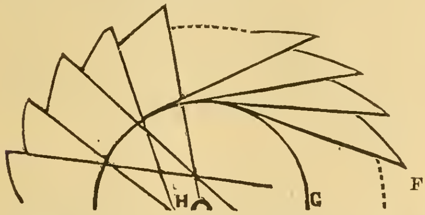
Friend Barnes, I fear there are a great many thick headed people in this world, and I sometimes have reason to think *I* am "chiefest" among them. Then what shall we do? I guess we shall have to make everything *very plain*, and I guess our tools would all better be sharpened *just right*, before they are sent out, and then purchasers will certainly know how they should be.

Messrs. Barnes Brothers have just sent us a pair of their improved Cutter Heads. They are of much nicer finish than their old ones, and there has been some grinding done on the points of the knives; but neither of them are ground as they should be to make the best speed in cutting. I think the gentlemen will excuse these criticisms. for I have always found them very ready to add any improvement. or suggestion I may have made, if a good one. We owe them a vote of thanks already, for having made such great reductions on the prices of almost all kinds of foot-power machinery. The spurs on the cutters sent, were too long, and they were of such shape that the block of wood was shaken while being grooved; when they are made so as to be thin sharp blades, cutting about the thickness of a sheet of paper into the wood, in advance of the chisels, with the steel ground back so as not to bump or rub against the sides of the finished groove, your block will stand as steady as if no cutting was being done, and your groove will be beautifully smooth and clean. Best of all, so little power will be required to do the work, that you will hardly know the tool is cutting. I know, for I have just stopped my writing an hour, to be sure I could make them go. As I have said before, we use saws instead of these cutters, because, with the constant work we have for them, they would require sharpening so often. A saw has 50 teeth or more, where these tools have but two, to do the work.

Before resuming my work, I must tell you that our sawyer is now happy; for we have a little blowing machine to blow the chips away, so that the little planer requires no supervision whatever. He says he can saw even faster than before, for the planer carries all the stuff away out of his reach.

When I have occasion to use the Foot Power Saw, I almost invariably find it needs oiling. I cannot afford to waste *my* strength, in trying to run a saw that does not run free. I found to-day, that some rubbish had been allowed to get under the treadle, so that it did not come clear down. When this was fixed, I found the hickory spring did not bring the treadle clear up. After I had turned the spring over, the treadle came clear up promptly, and I could get up a speed that would make a cutter, saw or any thing else "hum." It really makes me nervous, to see one who knows what the saw *can* do, try to work by giving the treadle a series of short stamps, as if it were an unruly sewing machine. If you are going to spin a top, you must draw off the cord, with a "full arm movement." and if you are going to do work with the Barnes' saw, you must draw off the strap from the fly wheel in the same way; let the treadle come up as far as it will, and then send it clear down to the floor. If you practice doing this, you will very soon, not only have the whole machine under your thumb, but you will have it under your foot, which is still better. You are now all right, if your saw is sharp, and well set.

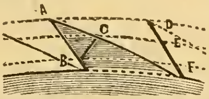
Remember the extreme points of the teeth are to do the work, and no power can be spared in making the saw rub or squeeze through the lumber. No part of the saw should ever touch the lumber, except these extreme points, and they are to be of such shape, and so disposed, that they pare off just enough to let the saw through, and nothing more. If you stand a chisel straight up on a plank, and draw it across it, it may scratch the wood some, but it will not cut it smoothly. If you try pushing it forward at different angles, you will find there is a certain position in which it will make a smooth cut. This is about the angle we wish to give the teeth of a rip saw. There is a rule, for getting this pitch, which you will understand from the diagram below.



SAW IMPROPERLY FILED. PROPERLY FILED.

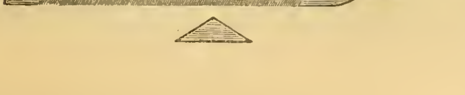
Let H represent the center of the saw, and F the circumference; G is a line drawn just midway between the center and circumference. Now, if a straight edge is held against the under side of the tooth, it should lie on the line G. Hold your try square on the under side of the tooth of your rip saw, and you can soon see if the teeth are of the right pitch. On the other side, you will see some teeth with a wrong angle. Some of them, would carry a line toward the center of the saw, and one of them, would go past the center on the other side. You need not say no one ever did as bad work as that, for it is not many years since I complained to Mr. Washburn that my saw would not cut well, and he, with a straight edge showed me just how badly I had been doing. I had commenced in a hurry, and had filed the saw just to make it do a little for the time being; I had filed both top and front of the teeth to get them to a point, "real quick."

Filing a saw on the top of the teeth, is a fearful waste of time, files, and especially, saws. Perhaps I can give you some faint idea of the matter from the cut below.



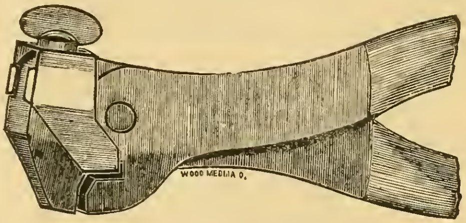
HOW SAWS ARE WASTED, BY IMPROPER FILING.

Let A be the point of the tooth when the saw is new, and C, the point where it would be after having been used for a certain amount of work, the filing having all been done on the under side of the tooth so as to leave the line A C just as it was when it was made, that is, it has been untouched by the file, and has only worn away, in actual cutting on the wood. The saw has been reduced in this way by this amount of work, exactly from D to E. Bear this in mind. Now suppose we have done the sharpening by filing the top of the tooth; in getting the same amount of cutting edge, we should file down from A to B. This would reduce the size of the saw from D to F, instead of from D to E. For fling these small saws, from 6 to 10 inches in diameter, we need a file made of just the proper angle like this cut:



The broad side of the file is to be laid on the top of the tooth; it is never to be used for cutting downward, but only to preserve the shape and angles of the top of the tooth, while the cutting is to be done from the under side of each tooth. The top of the tooth being made while sharpening the one just after it.

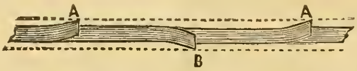
So much for the shape of the tooth; our saw must be set, or it will not clear itself through the lumber, and for this purpose, we have found the saw set shown below, as good as anything for circular saws, and if you cannot get them at your hardware store, we can mail you one for 75c.


WOOD MEDLIA O.

SAW SET FOR CIRCULAR SAWS.

The thumb screw guages the distance at which the tool goes over the tooth, and then bringing the handles together the tooth is easily and safely bent, just where it should be—near the point. The engraving is full size, but the whole tool, is about twice the length shown.

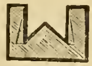
The diagram, below will give you an idea of the purpose of setting saws.



THE PHILOSOPHY OF SETTING A SAW.

You will observe that we depend on the little points A and B, to make a path along the dotted lines, for the blade. If these points get worn off, the saw will pinch, and a great part of the power will be consumed in making it squeeze through the wood. If your saw does not cut easily, this is very likely the trouble. If your lumber is unseasoned or tough, you will need much more set than if you have dry clear tender lumber. Of course we wish to get along with as little set as we can consistently, for the more wood we cut out, the greater is the power required. Now, another consideration comes in. If we do not set the teeth all alike, and it is almost impossible to do this with any saw set, on account of the tendency of some teeth to spring more than others, we shall have occasionally a tooth sticking out more than the rest; this causes much friction, and makes our lumber look bad with grooves ploughed in it at intervals. For large saws, a Side File is used, but for our work, I think we can level off the points very well with an oil stone. Lay the stone on your saw table, against the side of the saw, and turn the saw backward by hand. Now be sure you do not trim the points too much, and that you do not hold your stone so as to make the points wedge shaped. When done rightly, your saw should cut smoothly and easily, and the stuff should look almost as if it were planed.

In the drawing, I have given about the right angle for the face of the tooth. The point should be almost square, like the end of a chisel, but as the outside corner has by far the greatest amount of work to do, it should be kept a trifle higher. If you give the point of the tooth a very sharp bevel, the saw will leave a point in the wood like this, at A, and if the saw is crowded, the teeth will spring outward somewhat, as shown in the dark lines, making a great amount of friction, and rough and unsightly work. Have plenty of good files at hand, and touch up the teeth of your saws often, if you wish to accomplish the most, with the least amount of hard work.



The above directions, are all for rip saws. A cross cut saw is filed with a 3 cornered file, and needs but few directions different from those already given. As it is always used across the grain, it will work best to have it sharpened so as to leave the point A, as shown in the cut, for this will break off itself. The outer points of the teeth are to be kept very sharp, and are to be leveled up with the oil stone, so they all cut in the same path. The saw must also be set enough to clear itself, in all kinds of lumber. If you wish to cut up boards that are not perfectly seasoned, you will need to set your saw accordingly. You can, with the Barnes' saw, cut off a foot board at one clip, if everything is all right. Ours is seldom in order to do this, I know, but if I were going to use it, I would keep it in just such order. The grooving saws for section boxes, are to be sharpened like the rip saws. Now I know from past experience, that a great many of you will say you can not invest in all the machinery I have described, but that you would still like to make your own hives, section boxes, &c., having plenty of time in the winter. Well, I think I can do something, for even this class. Wait and see.

HOME MADE SECTION BOXES.

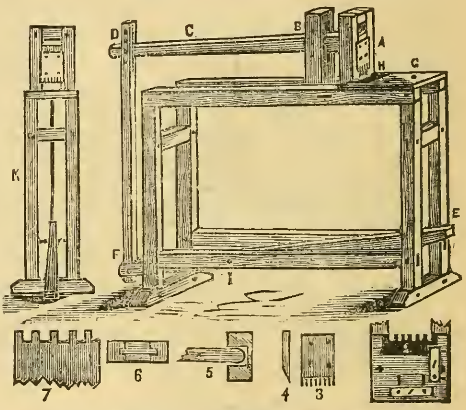
Some of our friends, among whom is Prof. Cook, have succeeded very well, with section boxes made of the thin veneer used for strawberry boxes. The stuff is simply folded around a square stick of wood, of just the size you wish your section frames. The ends are fastened by tacks, which are quickly clinched, by driving the points against a piece of iron or steel, set in the wooden stick at the proper place. These boxes are of a necessity of the same width all round, and therefore I can hardly see how the bees can get in, unless the frames holding them, are hung a little distance apart. If we do this, how shall we use the separators? I am sure I do not know, unless we have our honey bulging outside of the wood; in this case, we could not pack them in a shipping box, nor set the sections up close together; they are also rough and unsightly.

Now just here my friends, I am going to introduce to you, our friend N. A. Prudden, of Ann Arbor, Mich. Hear him:

I send you a rough sketch of my foot-power for matching section boxes, as I wish to do all the work possible for my bees, and make myself and them pay expenses. I am very much pleased with it, in fact it exceeds my most ardent expectations. Brother bee-keepers who wish to do their own work, save expense and freight, who have no power but man power, will find it just the thing. It is all wood except the knife, die plate and rod, and any mechanic can make one. It cost but 50c besides my own work. The frame was built for another purpose; it can be built on a work bench; a more substantial one could be built with iron lever, bearings,&c. The knife should work very exactly through the die plate. I cut one piece at a time but it can be made to cut through two or more pieces at once, or the 5 grooves at one stroke by having more lever power. It satisfies me to work single pieces. I can cut 4 per minute; say 2400 per hour—500 boxes per day and do the cutting up in a mitre box. I have my stuff ripped up at the machine shop.

After looking this over if you think—*never mind—do what you please with it.* N. A. PRUDDEN.

Thank you friend P. It is quite generous in you to take the trouble to describe it so well, for the benefit of others, and since you have given me *carte blanche*, I have concluded to give it to our readers, with some improvements and changes that our engraver devised, who, by the way, is quite a natural genius. Below is the machine as he has worked it out.



"HOME MADE" MACHINE FOR MAKING SECTION BOXES.

He has given us a side view, and a front view of the machine, and I am sure I need not tell you that putting your foot on the treadle, brings down the gang of chisels, with great power. This gang of chisels, is shown at figures 3 and 4, and any blacksmith should be able to make them for you, by looking at the illustrations. Fig. 2, shows a similar piece of iron or steel, to be used for a bed-plate for the strips composing the section box. This bed-plate has two pieces screwed on the upper side, in such a way that they may be adjustable at different distances from the chisels. You will bear in mind that the chisels, when cutting, will have quite a tendency to crowd the pieces, and this must not be allowed, or it might endanger breaking the cutters. These stops are to be adjustable, for the purpose of making different sized section frames.

Fig. 6, shows how the gate that holds the chisels, is made to work freely but surely, up and down. Fig. 5, shows how the end of the lever C, is made to work in the gate. Figure 7 shows the finished end of a section piece. Friend P. cuts just the number of mortises shown, in a piece 2 inches wide. Is it not an ingenious machine?

Why not use this in place of the saws, do you ask? Well, because it is too slow, and cannot well be made as nice and accurate. Friend P. says he can cut 4 in a minute; with the gang of saws in good order, our boys should cut a whole bundle of 100, in a minute. You need not be discouraged at this; running a shop full of machinery is very expensive, and the profits must be pretty large to cover expenses. I have no doubt that you could do nice work, and mak $3 or $4.00 per day, with the machine Friend Prudden has described. If there are not bee-keepers all round you who would buy the work, there very soon will be if you are a go ahead bee-keeper. At this date—Jan 5th,—we are receiving orders almost as if it were May or June, and an order for over $100.00 worth of hives and section boxes has been handed me since I sat down to write. Good nice work is what advertises business, and we have sent out so much that has not been what I call nice, that I almost wonder that my friends patronize me so much as they do. I believe I have shown you all the pictures I have prepared for this "visit," and I think, have pretty nearly said all I have to say.

TROUBLE.

TWO of our family, that is, our "bee family," have got into a quarrel, and, as they are both very good friends of mine, I have tried every way I knew, to make them stop; and have finally "scolded" them both, pretty severely. I blame them all the more, for they have both had excellent bringing up (they have had GLEANINGS to read for the past ever so many years, and it says on the front cover, "Peace on earth and good will toward men"), and yet they will quarrel. I know they have been exposed to unusual temptation, and on that account, we can freely excuse them if they will shake hands, and drop it all, right where it is. "But Mr. GLEANINGS, what has all this to do with us?" Nothing at all, had not a part of the trouble, appeared in two of our Journals, in a way that does at least one of the parties, a grievous wrong. I have plead and entreated to have this righted with no interference of mine, but as it has not been done, I see no other way, but to do it as best I can.

In our Oct, No. of last year, I warned you to keep away from bee Conventions held in large cities. "Therefore Mr. Novice it was none of your business what they did there, and you would better let it alone." Well, I think you are right in the main, but for all that, I feel that I may do good just now, by speaking. A $50.00 Gold Medal was offered, as you know; if I am correct, those who competed for the Medal, furnished the money to pay for it, by paying $7.00 each for the privilege of competing. That our friend "John Long" of Comb Foundation notoriety figured largely in the enterprise, was one reason why I warned you to stay away. "What have I against him?" Nothing only that he has never paid back the money that was sent him in all good faith. I could, perhaps, pardon his wronging our own countrymen, but his finishing operation of keeping over $100.00 that was sent him by our English friends has I fear embittered them against the whole nation of "swindling yankees," as they term us, and perhaps with justice. If Mr. Wm. Hoge, as his *real* name is, is poor and cannot pay it, it may be all right; but even then we can, I think, find some one to represent the bee interests of our country, whose name is untarnished by any such record. I care not how many millions the company he represents is worth, nor how high a position in society the rest of the world are willing to allow him; nor does it make any difference how pleasantly and kindly he has always treated me individually; in behalf of the brothers he has wronged both here and in England, I demand that he pay up, before we trust him or have confidence in him.

A number of our bee-keepers put in $7.00 each, and then one draws the whole, or at least $50.00 of it, in the shape of a Medal. I do not know how they conduct raffles, and other kinds of gambling, but it seems to me this is not very unlike it.

I'm afraid Satan recognized it as a raffle, if others did not, for he very soon put in his fingers. If I am correct, our hard working friend Doolittle, as well as his neighbor Betsinger, were verry soon asked to compete for the prize. In a friendly way, they agreed, like neighbors, to "go in for it" together. As Doolittle has often said in GLEANINGS that his honey box was Betsinger's invention, Betsinger was to have the credit of the box, and Doolittle the honey, if they took it, and they felt sure they would. Satan commenced his work in the matter, by having Doolittle's prize case of sections stolen off the cars, as friend D. has told us on page 11. Next, by causing Betsinger to turn against his friend and neighbor, after his honey case was unfortunately stolen, and decide to try to get the prize all alone. He, also, while his friend was at home with his bees, as I suppose, changed the labels on Doolittle's sample hive, adding his own name where D. had not put it. Mr. B. confessed this to me, and said he was sorry he did it, so I think he will forgive me. Another case was selected from the lot of honey that Thurber & Co., purchased of Mr. D., and the medal was awarded to it. Satan was still poking round, and stirring up jealousy I fear, for a *great many* think *they* ought in honesty to have had it; and I fear it was Satan who put it into poor Betsinger's head to look a little more critically at the crate that "John Long" had selected from among Doolittle's lot.

Perhaps it will be well to state here, that black bees will without question, make whiter looking comb honey than the Italians. The reason is that the blacks do not fill the cells clear up to the capping, as the Italians do, during a heavy yield. The white cap, with an empty space back of it, is much whiter to look at, than when the honey is in close contact. I have explained, before, how Mr. D. shipped his neighbor's honey with his, and in his own name. The initial of the owner's name, and the figures of the weights, were on each shipping case. Now Mr. "Long," had taken a case that came from one Mr. Ranney it seems, who kept black bees; probably on account of its whiteness, as I have explained. The whole matter was laughable, and would have ended in a big laugh probably, had it not been for the medal.

Mr. D. accuses Betsinger of having known of the blunder, before the award, and of keeping still purposely. I think this very unjust, and that he only discovered it by seeing Mr. Ranney's initials, after the award was made. Mr. Betsinger made known his discovery at once, but as it placed things in rather a mixed state, I believe it was decided to pass it all by. During the Convention, the question was asked, what race of bees made the Gold Medal honey. Betsinger stated truthfully, that it was made by black bees. As this placed Mr. Doolittle in a queer situation, without explanation, he thought best to flatly contradict his neighbor's statement, in two of our Journals. I have waited two months, to have Mr. D. recall his unkind charge; as he has not done so, I have tried to do it.

Very likely, I have not stated the matter correctly in all its minor points, but I think it is not far wrong. Mr. D. lays great stress on the statement that the medal was not awarded on this one case of honey that happened to turn out to be Mr. Ranney's, but for all this, he made a most *desperate* effort to make it appear that the honey in question was not Ranney's, but his after all.

It is quite fashionable of late, to excuse almost all sorts of crime under the plea of insanity; and when I think of the miserable subterfuges and excuses that people make for their wrong doing, I begin to think we are all crazy, the minute we get into any controversy, or quarrel. The two friends did get together and agreed to write and submit the matter to me, but it was a clear bargain, that neither should write before the time, Betsinger, instead of writing, paid me a visit; and now he (in to-day's mail), claims that he broke no contract, for he did not *write*, he only made me a *visit*. In the same mail came a letter from friend D. saying he does not say and never said (in his card below), the Gold Medal honey was not made by black bees, but only that he had no black bees in his own apiary.

Here is a copy of the statement that Mr. D. sent the Dec. *Magazine*, knowing the full facts as I have given them.

A GREAT MISTAKE CORRECTED.

Mr. Editor.—The notice in the BEE-KEEPER'S MAGAZINE that Mr. Betsinger stated before the National

Convention, that the bees that made the honey for which the gold medal was awarded, were black bees, thereby leaving the Convention and your readers to infer that we kept black bees, is not true, as we have not had a stock of black bees in five years. We should be very sorry indeed to have it go out that black bees could produce better honey than the Italians, and that their honey was so much superior as to draw the gold medal, after we, as apiarists of the ninteenth century, have taken so much pains to import them. G. M. DOOLITTLE.

For shame, for shame, my friends. Must I remind men of your age and standing, that it is not the *words* that we say, but the impressions we purposely convey, that God will hold us accountable for? I call upon you as men, as neighbors, as *Christians*, to shake off this spell that is upon you both, and stop at once and forever finding fault with each other. We will forgive you freely and God will forgive you, if you will only forgive each other. As a proof of your entire reconciliation, give us a letter in the Journals, with both your names signed to it, and then let it drop forever. For the sake of the religion we profess, do let the world see that Christians do *sometimes* give way, and that if we do quarrel, we do not quarrel very long. If I have wronged either of you please forgive me, for I did not mean to do so, and if necessary, bear a little more than each other's share of the blame, for the sake of that Savior who died for us all, and who took uncomplainingly, the sins of the whole world on His shoulders, even when He was guilty of nothing.

MORAL. ——Do not offer premiums or prizes, in any way that may stir up a feeling of rivalry. Follow the example of the Centennial and reward every thing that is praiseworthy, but have no strifes or contests.

* * *

WE have to-day, Jan. 30th, 2291 subscribers.

Oh dear. Oh dear! One of the 93 are gone already: *starved*. Got skipped—warm weather—*take warning*.

WE will furnish electrotypes of any of the engravings that have appeared in GLEANINGS, for 25c. per square inch.

IF you do not see your letter in this No. it is probably because there is a whole stack of them waiting their turn; they are all so good, I don't know which to take first, unless I take those that are *brief* and to the *point*.

QUEENLESS colonies, if strong, will come to no harm: let them alone, until April, and if given some eggs then, they will rear a queen and come out all right. If not strong in bees, a laying queen will be needed instead of the eggs.

WE cannot furnish nuclei, before July first, but two of our advertisers, Gates and Roop, offer them extremely low, and will ship them at any time, if I am correct. If you must have queens very early, this will probably be your best chance of getting them.

THE discovery friend Joiner refers to on page 36, for making fdn., is simply a revival of our old plan of using sheets of glass for dippers. It may do very well for making the 5 inch sheets, in limited quantities, but we decidedly prefer the metal plates, especially when we take the loss by breakages into consideration. Friend Stewart's invention embodies nothing that has not been already given in our back volumes.

ALL of our advertisers, are good responsible, and reliable people, or at least, I have good reason to think them so, and if in your deal with them, you find any who do not prove so, you are to report to me at once. How is it my friends, we all agree to this, do we not? I would like purchasers, also, to be courteous and civil, for since GLEANINGS has been the means of making you acquainted with each other, I feel somewhat responsible for the good conduct and behavior of both parties. If things get awry, let us straighten them, by all means, but do not write unkind letters. Remember there is a mighty power in gentle words.

SEEDS,

Plants, Bulbs, &c., for the Apiary, Flower and Vegetable Garden, Conservatory and Farm. Catalogue containing much useful information, free, or with 5 Packets seed of Honey Producing plants, 20c.
2-3 A. C. NELLIS, Canajoharie, N. Y.

Italian Queens and Bees at very Low Prices.

Two frame nucleus, in April, with dollar queen	$3 50
" " " " May, " " "	3 00
The same as above from June 1st to Aug. 1st...	2 00

All well stocked with bees.

I consider this the only *safe* plan for sending queens early.

Dollar queens after May 15th, (as I do not consider it safe to send single queens sooner),—80 cents.

Whole colonies, after June 1st, in single story Simplicities, with 8 combs, and two frames empty, with such Italian queens as I have, $5,00.

I will guarantee safe arrival, and that all shall be just as represented.
2inq G. W. GATES, Bartlett, Tenn.

PLANING MACHINES.

Cigar Box Planer.

See cut on page 55.

This Planer is designed expressly for planing lumber for cigar boxes. It is small, strong and compact, has two speeds of feed, two feed rollers. The pressure bar holds the lumber firmly to within ¾ of an inch of the cut of the knives. It planes very smooth, and pieces as short as 4 inches long without chipping the ends. We build two sizes, to plane 9 and 12 inches wide. The 9 inch planes from ⅛ to ⅝ inch thick. The 12 inch planes from ⅛ to 4 inches thick. The size of driving pulleys on counter is 6 inches, and should make 1000 revolutions per minute.

Price of 12 inch	$75 00
" 9 "	60 00
" Counter Shaft	12 00

Lilliputian Planer.

See cut on page 56.

We believe that we have accomplished in building this planer, what has never been done before, which is: being able to sell a good, complete two roll iron frame planer, substantial in all parts, for the sum of $50.00. It will plane from 800 to 1500 feet of hard or soft wood lumber an hour, in the very best manner, and do its work with less power than any other planer. One horse with a good tread power will run it to very good advantage. It is a very excellent Planer to plane Sash, Door and Window Blind Lumber, Window and Door Casings, Barn and Fence Boards, Hard Wood for Wagon Work, Agricultural Implements, &c. It has one feed roll before the cutter-head to feed in the lumber, and one behind to feed out. The small pinion between the large gears is made of steel and will last as long as the large ones. The Planer is belted and tested before being shipped. We build three sizes, to plane 12½, 15 and 18 inches, and from ⅛ to 4 inches thick. Those without stands can be set on a strong box, a piece of timber, or on the end of a log.

Price of	12½	inch	with stand	$60 00
"	"	"	without stand	55 00
"	15	"	with stand	71 00
"	"	"	without stand	65 00
"	18	"	with stand	82 00
"	"	"	without stand	75 00
Counter Shaft				15 00

Orders accompanied with the Cash, $5.00 less.

The Gem Planer.

This is a new pattern of Planer, combining many points of the Pony, some of the Lilliputian, and some not possessed by either. It has two feed rollers, one before and one behind the cutter-head. The bed is lowered from the head. The position of the cutter-head is not changed for different thicknesses of planing, thus giving the same tightness of driving belt, no matter from what direction it is belted. It has two speeds of feed, obtained by the use of cone pulleys. It is very easily adjusted, requiring the tightening and loosening of no bolts or screws to change for different thicknesses of planing. It works well on either hard or soft wood. We build two sizes, to plane 16 and 20 inches wide, and up to 6 inches thick.

Price of 20 inch	$115 00
" 16 "	100 00

Address all orders to A. I. ROOT, Medina, O.

MASSACHUSETTS AGRICULTURAL COLLEGE

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles see our Twelfth Edition Circular and Price List found in Jan. No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C. Part First	$ 10
	Basswood trees for planting, for prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	" " waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees; 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 6 in. $1 50; 7 in. $1 75; 8 in 10 inch, $3,25; all filed, and set, and mailed free of postage.	2 00
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
1	Cages, wood and wire cloth, provisioned, see price list	05
12	" " " per doz	50
	" Larger size double above prices	
20	Candy for bees, can be fed at any season, per lb	15
	" 1½ lbs. in Section box	20
	" " Eight lb. slab in L. frame	1 15
0	Cards, queen registering, per doz	06
0	" " " per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	" " without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	" " top only, per 100	1 00
15	" " bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
12	Duck, for feeding, and covering the frames —bees do not often bite it—per yard, (29 inches wide)	20
15	Enameled cloth, *the best* thing for covering frames. Bees neither bite nor propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $7 50 to 10 00	
	" inside and gearing, including honey-gate	5 00
	" Hoops to go around the top	50
	" " per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, pepper box style	10
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz	2 00
2	" 3 cornered, for cross-cut saws	10
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	" Vol's IV and V, each	1 00
0	" Vol. III, second-hand	2 00
0	" first five neatly bound in one	6 00
0	" " " unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives	1 00
	" " ½ doz	5 25
	" " ½ doz by Express	5 00
0	" " Curved point	1 00
	" " " " ½ doz	6 25
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	50
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	" " Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	" Prepared objects for above, such	
0	as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	25
0	Photo of House Apiary and improvements	25
0	Queens, 50c to $6 00. See price list	
2	Rabbets. Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes showing the way in which the separators are used, suitable for any kind of hive, see cut, p. 8,	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	" Catnip, good seed, per oz. 20c; per lb.	2 00
0	" Chinese Mustard, per oz	15
18	" Mellilot, or Sweet Clover, per lb	60
18	" White Dutch Clover, per lb	60
	" Motherwort, per oz. 20c; per lb	3 00
18	" Mignonette, per lb. (20c per oz)	1 50
	" Simpson Honey Plant, per package	05
	" " " " per oz	50
18	" Silver Hull Buckwheat, per lb	10
	" " " " peck by Express	75
18	" Summer Rape. Sow in June and " July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of duck to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
10	Smoker, Quinby's (to Canada 15c extra)	1 50
5	" Doolittle's	25
	" Bingham's $1 25; 1 60;	2 00
25	" OUR OWN, see illustration in price " list	75
2	Tacks, galvanized, per paper	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of tarletan (almost as good)	50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned per square foot	15
2	Wire cloth, for queen cages	12
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, 14 mesh to the inch, per square foot	07

All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.

FOUNDATION CUTTERS.

See engraving in this number. Price 10c. Two cents extra when sent by mail.

A. I. ROOT, Medina, Ohio.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Names of Premium Articles. *Any of them sent post-paid on rec'pt of price.*	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	3
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

Square Honey Jars.

One pound square Honey Jars, per gross	$5 00
Two " " " " "	7 00

Corks, Caps, Labels, Langstroth's Bee Hives, Muth's All Metal Honey Extractors, Alsike Clover seed, &c., at reasonable rates. For further particulars apply to CHAS. F. MUTH, Cincinnati, O.
1-3-5-7-9-11

Italian Queens and Bees at very Low Prices.

Two frame nucleus, in April, with dollar queen	$3 50
" " " " May, " " "	3 00
The same as above from June 1st to Aug. 1st	2 00

All well stocked with bees.

I consider this the only *safe* plan for sending queens early.

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I will guarantee safe arrival, and that all shall be just as represented.
2inq G. W. GATES, Bartlett, Tenn.

VICK'S ILLUSTRATED MONTHLY MAGAZINE

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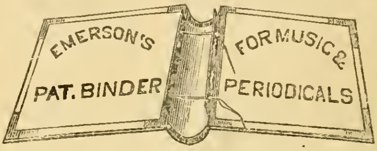

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2-8d Address, E. W. HALE, Wirt C. H., West Va.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. MARCH 1, 1878. No. 3.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
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MY EXPERIENCE. NO. 3.

SMOTHERED BEES.

During the warm days of March, bees flew some. During one of their "flying spells," I noticed that they did not fly from one hive, and a few days later I saw they did not fly from another one. Later in the spring the straw was taken away from the hives, the two dead colonies taken into the house and the honey removed; I then discovered what I *thought* was the cause of their death.

The man of whom I had purchased them had placed a pebble under each corner of some of the hives, which caused the bees to build the comb down to the very bottom. I had placed the hives upon a board with nothing under the corners; this, of course, brought the combs in contact with the bottom board. As the dead bees accumulated at the bottom, the passages underneath the combs became completely closed, putting an end to ventilation, and shutting the bees in the hive. There was considerable honey left by the dead swarms, and, by some piecing, I obtained seven frames of dry comb. I raised the other hives, brushed away the dead bees, and found that the combs, in some of the hives, touched the bottom board slightly in some places. I raised the hives and put thin strips of wood under the edges. The lower edges of nearly all the combs, in the two colonies lost, were "smashed" against the bottom board.

FEEDING.

As soon as the weather was warm enough for the bees to fly nearly every day, I commenced feeding in the following manner:

I made boxes 5 inches long, 4 wide, and 2½ deep. I made the joints tight with beeswax, set the boxes over the holes in the tops of the hives, covered them with boards upon which had been tacked three or four thicknesses of woolen cloth, laid bricks on top to keep the covers down, and plastered up the cracks between the boxes and the hives with mud. I commenced by putting a piece of comb, an inch square, filled with honey, in each box, each night; the "dose" being gradually increased. This feeding was continued until the bees not only stopped carrying it down, but commenced storing honey in some pieces of empty comb which were in the boxes. When swarming time came, my bees were stronger than my neighbor's. It might have been the feeding, and it might have been something else.

KEEPING A DIARY, SLATES, &C.

As soon as I obtained some bees, I commenced keeping a diary, in which most of my bee-keeping "proceedings" were recorded; I have continued it ever since, and a good share of "My Experience" is taken from it. Let me give a few short items, selected from it at random.

"*April, 12th,* To day is the first that I have noticed the bees bringing in pollen. Willow is the source from which it is gathered."

"*July, 13th,* Extracted 60 lbs."

"*July, 22nd,* Removed 25 lbs. honey in small frames. Basswood continued in blossom about 10 days."

"*Sept. 6th,* Extracted 33 lbs. Extracted from one frame in each hive, and placed it in the centre of the brood nest. Did it to give the queen room to lay."

This kind of record was kept until I reached the busy season, when I found it becoming so lengthy, that, although my hives were numbered, it was sometimes a little difficult to find any particular item at a moment's notice. I then made a slight change by taking a page in my note book for each hive, having the number of each hive placed at the top of the page. The record of each was thus kept separate. Anything of general interest, that appertained to the apiary as a whole, was placed in the diary. I have seen small slates advertised, to be hung on the side of the hive, for keeping a record. I have never used them, but think I should like my way better. You have the record of your apiary all together, and in a convenient shape for reference, and preservation. Carry your note book in your pocket, and you can write in that just as well as you can upon a slate, fastened to the side of the hive.

W. Z. HUTCHINSON.

Rogersville, Mich.,

I do not think your bees smothered from want of air, but got into a fever and worried themselves to death, because they could not get out. As soon as a day comes, warm enough for them to fly, you should see that the bees are out from *every* hive. If they are not, go at once, and see where the trouble is. If their entrance is clogged, open it at once, if you have to tear the hive all to pieces. Your plan of feeding was effectual, doubtless, but it would be a great deal of trouble with a large number of hives. Your diary is an excellent idea, but with 100 or more hives, it would soon get to be voluminous. We have used the same plan, of giving a page to each hive, but the book was soon neglected in the hurry of the honey season. The time occupied in writing, is considerable, and with the queen cards, we have it already written, or what is still better, printed. All you have to do, is to turn the pins. For queen rearing, there are contingencies coming up, that make it very desirable, many times, to have a slate, but I am afraid I would always be losing my slate pencil. We have taken some pains to see how low slates can be furnished, but at present writing, can find nothing but what I should call both unsightly, and expensive. If something for about $1.00 per hundred, light and with smoothly finished edges, could be procured, I think I would like them. D. D. Palmer, of Eliza, Ill., first suggested and put in practice the idea, if I am correct. He described them in our journals 4 or 5 years ago. If pasteboard, wood, or sheet iron could be so coated with liquid slate, such as is used for making blackboards, as to be weather proof, it would probably be just the thing; but I have little hope that anything would prove as durable in this respect, as the slate itself. Are any of our subscribers near slate quarries? if so, will they please work the matter up, or give us the address of the proper parties?

IN THE NICK OF TIME.

MANY people have a habit of locking the stable after the horse has been stolen, and no doubt many bee-keepers try to save small or weak stocks in the spring, and try to patch them up, when it's too late. Now, they did not do it in the "nick of time." As early as the middle of Sept. every winter, stock should be put in shape. We mean by this, that a colony should have plenty of honey and just as many combs as they can well cover, and no more. Don't be afraid to crowd them a little, for as the weather becomes cold they will find ample room. In this condition a colony will keep their hives warm, expel the moisture, and no frost will be found in the hive, even in the coldest weather, in well packed hives.

The next "nick of time" will be the first day in spring that is warm enough to handle them with safety. Now is the time to save weak stocks; crowd them onto as few combs as possible with division board, and tuck them up warm. In this condition, brooding will go on quite rapidly and the stocks will soon begin to increase in numbers.

But if such weak stocks are left in a large hive containing double the number of combs they can cover, they are cold and can't raise brood fast enough to keep their numbers good, and dwindling is the result. Any stock that is worth the saving, can, every time, be built up into a good populous stock ready for business by the time white clover blooms. We do not much fancy the robbing of good stocks of their brood to build up a lot of weak ones, except it might be to save valuable queens, &c.

I find, every spring, that I can put the very best stocks I have on about 5 combs until nearly the end of April. By that time they will be crowded from top to bottom. *Now* I spread the combs but not sooner, and by fruit blossom time they are very populous and ready for action.

Since I have adopted the plan above described, I have no trouble, either in winter or spring, with my bees; two per cent will cover the loss of 1876 and '77.

J. BUTLER.

Jackson, Mich., Jan. 31st, 1878.

EXTRACTED VERSUS COMB HONEY.

ALSO SOMETHING ABOUT LONG ONE STORY HIVES.

I WAS much interested in Doolittle's explanation of how he got 566 lbs. of honey from one hive. It seems to me, notwithstanding your opinion to the contrary, this experiment of his, has completely solved the hive question. Here, with a one story, simple frame hive, *altho' it was a long idea one*, 566 lbs. of honey was obtained, which, if sold at 10c per lb., would bring $56.60; while if his average of comb honey had been 200 lbs. from each hive instead of 166, at 20c per lb. it would have brought him but $40.00. Besides, as he worked only two hives for extracted honey and 55 for comb, it is not all probable that he had the best honey makers in the hives from which he extracted. Be that as it may, it is evident he lost some $15.00 or more per hive by working for comb honey; this amount on 55 colonies would amount to the snug little sum of $975.00. These figures of course are only approximate, not having Doolittle's report at hand, to make verbatim extracts from.

Again, all agree that extracted honey can be produced with less than one-half the labor, and certainly with one-half the cost in hives, honey boxes and fixtures. Besides, extracted honey can be sold for more than 10 cts. per lb., while it is extremely difficult to get 20 cts. per lb. for comb honey.

Hence, I conclude it will not pay to raise comb honey; or rather it will pay better to produce extracted honey. You speak of his "long idea" hive as though it were going back to antiquated notions, and mention another party who actually got a few lbs. more from a two story hive; and you very justly conclude, therefore, that the shape of the hive had nothing to do with his success. True enough; and here is the important point; if as much honey, or a *little less*, can be obtained from a simple one story hive, why be bothered with manipulating a complicated and costly two story one? I think a longer frame, like the Langstroth for instance, would be better for such a hive than the little, square Gallup, because we would get about as much comb in 20 such frames, as in the 32 Doolittle used, and thus save nearly two-fifths of its length.

Now, I want to tell you my plan of using chaff. I think I discount your chaff cushions for the sides of the hives. In order to do this, I must first tell you of my hive. My frames are 10x13 inches inside and hang across the hive, which is 16½ inches wide. I make four frames two inches wide and large enough, when hung in the hive, to fill the sides and touch the bottom. One side of these frames is covered with any thin wood, such as picture backing or lath, and the other side, after packing it full of chaff, is covered with wire cloth, just such as people use for door and window screens. This wire keeps the chaff in and at the same time permits the escape of the moisture from the bees. They are used in this way: the top bar of two of them is rabbeted the same as the sides of the hive; these two are hung, one in the front end of the hive which one has an entrance slot cut in its bottom bar, and the other is hung in the rear, far enough back for the frames to hang between. Enough frames are now hung in to winter the bees on, and the other chaff frames hung one on each side. Then a chaff cushion is placed on top and the bees are chaff bound completely, bottom excepted. These frames I can make for less money than you advertise your chaff cushions at, they can't be eaten by either bees or mice and ought to last indefinitely. Of course this is for one story hives.

I have two experimental colonies which I am trying to winter exclusively on glucose. I looked at them to-day; they seem to be doing nicely so far.

A. W. FOREMAN, M. D.

White Hall, Ills., Feb. 4th, 1878.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

OUR industrious friend Mitchell has just issued quite a pretty little circular, and if he would moderate his statements a little it might be the means of doing some good. A while ago, he estimated each colony should produce $100.00, but he now gets it much better, although it should come down a great deal yet. We extract as follows:

> Bees handled and worked as they ought to be and as we direct, every such colony will give its keeper annually at the lowest estimate, $40.00 cash, or 100 colonies will give the keeper $4000.00, and in very many sections they will double that.

Do you see how mistaken you were last month, friend Martin? and again:

> There are purchasers in New York City who are advertising for extracted white clover and basswood honey, and are buying all they can get for which they are paying 22 cents a pound cash, *and they like it all the better if it is candied.*

Well, really! this is better news yet. Unfortunately the address of this house was not given. We presume it is furnished his pupils who pay $5.00 for two hours schooling. I infer from the next that he has gone way past spring dwindling.

> Along in the month of February the young bees will be hatching out by thousands. Then is the time to aid your bees to increase in number. This you do by removing one of the adjusting boards a little, and frames, so as to be able to set one of the empty

combs in the center of the brood nest. The queen will at once deposit eggs in every cell, and the young bees constantly hatching from the other combs, your hive is continually filling up with bees and as they fill up the hive you ought to add an empty comb occasionally.

In February! why it is time to go and spread our combs now, and before this reaches you, I fear it will be too late. I would not dare to advise such work before May, with our usual seasons. The last is the best news of all, and if our friend could only raise queens in Feb. all our troubles about getting queens early, would be at an end.

SANDUSKY CITY, OHIO.—About the first of May, 1878, we intend to remove to the above named city. We go there for the reason that it is a much better country for bees than this, and we there have the advantage of those beautiful islands in the lake out of the reach of black bees, where we can raise queens as pure as if we were in sunny Italy. We will take with us at least 1000 stands of bees, which will be kept on the main land near the city, and all our queens will be raised in our Queen Breeding Apiary, and as soon as hatched will be sent to the Island to be fertilized, We have made preparations to raise 1000 queens per month. We can give you but an outline of the work before us, but that you may see the great work we are engaged in, we extend to you and every bee-keeper of the country, a cordial invitation to visit us at Sandusky, and see for yourself that our new system of bee culture is all that we claim for it and even more.

1000 GOOD AGENTS WANTED.

This is all very nice and commendable, but the letters that keep coming, seem to indicate it may be well to continue to keep a watch over Kelley's island even if the foul broody stocks should all be removed.

I notice you touch up N. C. Mitchell, or your correspondents do, occasionally. He sent me an advertisement stating that if I would call at his place of business in Indianapolis, I could see Italian bees in all their beauty. I called and he had two small colonies of the scrubbiest kind of blacks; but before I left he insisted on selling me the right to his famous (?) hive. I did not buy. Last fall he had an apiary at Clermont, 5 miles from here, and I am told he extracted so closely that nearly all the little innocents starved to death before winter was half over. He has printed a small pamphlet (50 cts.) on apiculture. His chapter on keeping bees good natured is taken almost verbatim from Quinby.

J. F. HICKEY, M. D.

Trader's Point, Indiana.

He says in regard to Italians that will sting:

This comes of selling dollar queens; and we have been told by those who visited the apiary of the father or instigator of the dollar queen movement that they saw him go among his bees with gauntletts upon his hands and a protector over both head and face and seemed to be in every way sting proof, and yet his bees drove himself and visitor out of his own apiary. If bee-keepers want Italian bees they want them in their purity or not at all, and that we may be able to furnish them in their purity, we have determined to remove our queen breeding apiary to Sandusky City, Ohio, where we will have the advantage of Kelley's Island. Upon it we propose to have all our queens fertilized.

Now, that was "awful naughty" in me was it not, brother Mitchell, to put rubber gloves among humbugs and swindles so long, and then wear 'em myself, when I wanted to show the bees to visitors? I never in my life had on a pair of rubber gloves, but my neighbors have, and after seeing them covered with the stings of the poor little martyrs, they decided, as I have so often said, that the bees would sting rubber gloves, when they would not think of stinging the naked hand, and so all have thrown them aside, as worse than useless, and money wasted. I earnestly protest against their being offered for sale to beginners who do not know what is needed. The broad margin of profit, at $2.00 per pair, is I presume one secret of the pertinacity with which they are urged on the inexperienced.

To go back to our subject; if friend Mitchell will go onto Kelley's island and do an honest business, raising and selling queens, I will give him a nice standing advertisement gratis. The foul brood that now exists there, can easily be eradicated, and the island can be stocked with pure Italians, just from Italy. As we have a subscriber there, I can easily keep track of the project and will be extremely glad to help any such enterprise; but it *must* be done honestly and squarely.

I have never realized a cent of the money sent Mitchell for extractor, &c. JAS. MCCOOK.

Natchitoches, La., Jan. 27th, 1878.

REPORT FROM NEBRASKA.

ALSO SOMETHING ABOUT HONEY PLANTS.

I SEND you my report of last year's results with 97 stocks of bees. The season was very peculiar as no surplus honey was gathered until Aug. 8th. In March, I set out 97 stocks of bees; in the latter part of the month, pollen was gathered quite freely from hazel and willow bushes, and on the 10th of April they stored honey and built comb. The flow of honey was from red elm, which, when the weather is warm, furnishes considerable honey for a few days. Rainy weather set in about the first of May and continued until the middle of June. We had drones by the middle of May and raised queens; but lost 9-10 of them, up to the 15th of June, when the weather became favorable and we met with better success. We had 14 acres of red clover, upon which bees, both black and Italian, work freely in this section of country owing to its shortness of growth, but some of them starved to death while busily working on it. It blooms the fore part of June. Then followed hot and dry winds which prevented any flow of honey from the basswood, but sweet clover furnished a scant supply and was worked on all day long with the greatest perseverance.

It is apparent from the results of this year, that unless the conditions of the atmosphere and soil are right, there will be but little honey secreted by any plant or tree; but if all the conditions are favorable at any time in the season there will be a fair flow of honey from such honey plants as may be in blossom; for, even dogwood, for a few days, furnishes a good flow of honey, circumstances being favorable.

Lucerne is of no value for honey; in fact, is not worked on at all, and Simpson weed, which grows among timber all over the country here, is too scattering to be depended upon for a surplus of honey. The great honey plant of the West, is English smartweed which blooms the first of August and continues until frost, furnishing light colored honey of good quality, without nauseating properties; and if not the equal of basswood, in other respects, it is far ahead in that. This, with buckwheat, from the first of Aug. up to the 8th of Sept., furnished us with 5400 lbs. of surplus honey (mostly extracted) and caused our bees to increase to 145 stocks; about 50 per cent of honey and 20 per cent of increase per stock on that of last year.

My impression is that sweet clover is a very valuable honey plant. That, with English smartweed will furnish a supply in grasshopper years, in sections that are overrun by these pests, for they do not eat sweet clover the first year of its growth, nor smartweed to injure it at all; neither do they the Rocky mountain bee plant.

Rulo, Nebraska. JEROME WILTSE.

The Simpson honey plant needs some protection, or it will be broken and trampled down by stock. While we found none in the open fields, wherever there was a tree top, or something that kept the cattle away from it, we found it in great luxuriance.

RAISING DOLLAR QUEENS, &c.

AS all my bees are safely packed under their quilts and under the snow, I thought it would be a good opportunity to report for the past season. My bees here at my home apiary have netted me, as nearly as I can estimate, about $17,60 per colony, wintered, (24 in the spring) in honey, increase, bees, and queens sold; but it was an unusually good season after June 1st. The road of the bee-keeper who raises dollar queens is not altogether strewn with flowers, as you *know* and I can *testify*. Our spring was warm as summer for a few days and then cold and wet; and by the time my queen cells were ready to hatch they would be all torn down or chilled; then my customers would grumble and really when I had done all I could to raise the queens, and the fault was in the weather, it was not pleasant to be abused for it. In several cases I sent tested queens.

E. W. HALE.

Wirt C. H., West Va., Jan. 9th, 1878.

I wonder friend H., if we can not talk over the matter pleasantly before the season comes, and get our friends to promise not to scold, even if the queens do not come as soon as they expect them. We got the worst scolding for sending queens from other apiaries; but I really do not see why we should be blamed for so doing, when we had made no promises to the contrary. When one has more orders for any kind of produce than he can supply, I believe it is usually customary for him to purchase of his neighbors. Now the question comes in, are the neighbor's products just as desirable? If so, the orders may as well go direct to these neighbors. It is quite important to know just who among our queen rearers has a surplus on hand, that we may get prompt returns, for I tell you, nothing advertises, like queens sent by *return* mail. I do not mean promises, but *doing it*. When any of you get a stock on hand ready to ship, I will mention the matter in print, free of charge. Now who will have dollar queens ready to ship, soonest?

AUTOMATIC SWARMING.

A NEW SWARM GOING INTO AN OLD HIVE.

I'M not a champion of the "box hive," but I can send you a good report of one, given me by a lady bee-keeper who has several kinds of hives. In the winter, a weak colony died out of an old box hive, the bottom board of which is on the ground, and partially buried in the earth. The next season, at swarming time, a few bees were seen going out and in for several days. No notice was taken of their doings, it being supposed that they were hunting for honey, as the old comb was still in the hive. In a few days a stray swarm was noticed in the air, which soon settled upon the old box hive, entered it and went to work. They filled the hive with honey and made enough box honey to sell for $30.00. Who can give a better report? A. B.

Springfield, Ohio, Jan. 29th, 1878.

Many thanks for your very valuable fact. Friend Martin spoke of locating hives in the woods, a few months ago, and several cases have been reported, of new swarms going into trees that had been previously occupied; but we have known but few instances in which the new swarm went into a hive in the same yard. Does not this, in reality, look as if the little fellows had an eye out for the main chances, very much as one with reason, would have? Now for business: Can we not manage to have hives arranged in such an attractive manner, hidden among shrubbery, or in places for which bees are known by experiment, to have the greatest preference, filled with nice combs, in such a way that the new swarms may take to them instead of going to the woods? Can not we offer "counter inducements" as we do to get the street boys to go to Sunday school? Imagine a vender of patent hives, saying in his circular,

"The bees have unanimously given my hive the preference by adopting it in place of any other, and they carefully examined every point in its construction several days before the swarm came out, as did they also, 25 other patent hives placed in the same yard under the same conditions. When the swarms came out, they took a bee line for my hive, and gave all the rest the "go by."

We could scarcely claim the bees were influenced by any unfair motive, and if they should take a log gum instead of the chaff hive or Simplicity, we would have to conclude they had very little sympathy with modern innovations. I verily believe we can fix hives so that a great part of the absconding swarms will go into them. If it is better to have them located in a tree top, I presume we can arrange that part of the programme also. Who can give us more facts of a like nature? Box hives sometimes do well, any way; glad to hear it.

Perhaps the large yield of honey, was because they had secured a home after their own liking; and, by the way, it seems they made no objection at all to their hive being not only *on* the ground, but if I understand correctly, partially *in* the ground.

LARGER BEES. AND 4 1-2 CELLS TO THE INCH.

I DO not quite understand your remark as to having made a mistake in ordering 4½ cells to the inch, bearing in mind you would not say so except as the result of experience. In one of my former notes, I remember remarking on the quantity of drone cells your fdn. had produced in the hands of Mr. Cheshire; this was not borne out in my own experience afterwards. Last year I replenished all my hives with natural swarms giving fdn. 4½ cells to the inch. I scarcely had a drone cell throughout, except indeed where, as sometimes happened, the wax sheet had broken away or did not fairly fill the frame. Mr. Cheshire's failure was no doubt through his putting the new sheets in the centre of the brood nest of strong stocks. I apprehend with or without fdn. the bees would build drone comb when honey comes in rapidly. Both Mr. Cowan (a very able apiarian) and myself feel *quite sure* we obtain larger bees from the larger cells, surpassing in size those cradled in cells of their own usual size. Indeed I think it quite possible, by gradually increasing the size of cells and working with swarms only, we might breed up the workers to the size of drones.

JOHN HUNTER.

5 Eaton Rise, Ealing, England, Jan. 15th, '78.

It may be, friend H., that larger bees will be raised in the larger cells; but you certainly make a mistake in saying that drone comb will be built under some circumstances, fdn. or no fdn. If 5 cells to the inch is hung in a *queenless* colony, there will not be a cell of drone comb, and I have never heard of a cell of drone comb being built in the 5 to the inch fdn. We have a large number of combs in our apiary, on the 4½ fdn.. and it just now occurs to me, that this may account for the very large worker bees I have noticed and mentioned during the past season. I gave the credit to the imported queen, but after all, it may have been a frame or two of the large worker comb. I did tell you my friends, that the 4½ worked all right; it was beautiful compared with our natural combs. Of course we get a good many more bees, with 5 cells to the inch, but which is better? many small bees, or not quite so many, a little larger? I confess I do not know. I am well satisfied that the bees raised in the 5 to the inch, are full as large as the bees reared in natural comb; those reared in the 4½ *may* be a little larger than natural. Who will tell us more about it? I once stood an L. comb on end, against the side of a tall Am. hive, for the purpose of making a nucleus. The comb sagged in, toward the side of the hive making one side concave, and the other convex. When the queen became fertile, and filled both sides with eggs, in due time, we had a shower of yellow Italians, but to my surprise a great part of the workers, seemed scarcely larger than a house fly. As the little fellows flitted about, they looked so comical, we shouted with laughter, and when they commenced to bring pollen, much was the merriment occasioned among the children, at their queer appearance. An examination of the comb, showed very clearly, just what brought about these small bees; the concave side of the comb showed a patch of small cells, caused by the wall being contracted by the sagging, and small bees were seen biting their way out through the caps.

Again; one of our readers once sent me a piece of comb containing worker bees in drone comb. It was put in a hive, and the bees hatched out, but they were so much larger than the rest of the bees in the hive, that they could readily be picked out. I think there is little doubt, but that we can by this means get larger bees; the small ones carried small loads of pollen; why should not the large ones carry large loads? I do not know how we shall get up to drone size very well, unless we can get some of the queens to promise not to lay any drone eggs, even if the cells are large; if we can do this, perhaps we shall not need the Apis Dorsata, at all. Thank you friend Hunter, for suggesting the idea.

◆

HOW TO MAKE THE SHEETS TO COVER THE FRAMES.

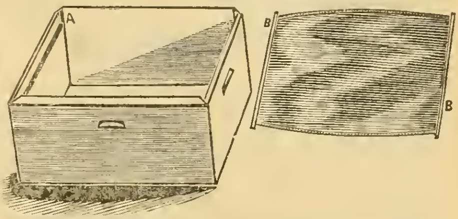
ENAMELED CLOTH VERSUS DUCK.

I NOTICE that you do not use the honey board (so called), on your hive; is it dispensed with now on the Langstroth? I think the bees will wax the duck, or muslin, so that it will be difficult to take it off to examine them. E. W. BOWE.

Tiffin, Ohio, Feb. 6th, 1878.

On page 330, of last year, I mentioned that I had been experimenting with enameled cloth, in place of duck, and that when the enameled surface was placed next the bees, they did not take the trouble to cover it with propolis.

Somewhat contrary to my expectations, it answers excellently for winter also; this is perhaps owing to the influence of the chaff cushions, for no frost ever gets to the sheet over the cluster, when used in the chaff hive. I am so much pleased with the enameled cloth, that we are now using it instead of the duck. It is so thin that it is less liable to kill bees than the duck, and it is really a little cheaper, for we get it in bolts of 12 yards each, 45 inches wide; this cuts up without waste. To have the cloth close the top of the hive perfectly, so that not even an inquisitive bee can push his "physiognomy" out any where, is quite a little problem, and I will tell you how we have done it.



SIMPLICITY HIVE. ENAMELED CLOTH.

Let fig. 1, represent a top view of an empty Simplicity hive, and fig.2, the sheet of enameled cloth, with the strips of tin folded on each end. A, is the space cut out of the end boards, to hold the metal rabbets, and B B, are strips of tin ¾ of an inch wide, folded twice over the end of the sheet of cloth. These strips of tin are cut just long enough to drop into the channels A. You will observe that a corner is left where the rabbet is cut out, that takes the tip ends of the tins, and holds them securely up against the ends of the hive. Now almost all kinds of cloth will shrink after using, and besides, it is difficult to cut cloth to such exact dimensions as we can wood or metals. Accordingly, we make our sheet a little long, and to bring it straight and smooth over the tops of the frames, we roll the surplus over one of the tin strips one or more times. This allows us all the room we shall ever need, and yet we can take up all the "slack;" that fixes the ends bee-tight. Now the sides are liable to draw in some, especially, when we stretch the cloth lengthwise. This could be fixed, by making the width a little full, but if we did this, we should cover the ends of the tin strips that fit in the corners, and this makes it difficult to get them into place quickly. It can all be nicely arranged by making the sheet broader in the middle, as shown in the cut. Perhaps a ¼ inch should be added to the middle of each side. With this arrangement, you can close a hive of hybrids in a second, and if any bees are left above, they are level with the top of the hive and have no cavity to get into, from which they must be picked out; therefore if they do not get off and down to the entrance, of their own accord, they can be very quickly brushed off, before putting on the cover. As this thin sheet of cloth is but little protection, I would always have the thin chaff cushion in the cover to be placed over it, except in very warm weather. Remember no bees are ever to touch the chaff cushions, under any circumstances. Now we have solved the problem of keeping the bees from building bits of combs on the top bars of the frames if we wish. Simply scrape the top bars clean, and when you close the hive, make all the bees get off them by pushing them along with your finger, on the outside, over them; then put on your chaff cushion to keep them from pushing the sheet up again. As this takes considerable time, I think I would let them build bits of comb just high enough to keep the sheet from pressing on them, when it is put over the frames.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

THE following card, suggested the starting of this department.

No use in humbugging any more about it. I have your receipt, dated March 15th, 1877, for $1.10. I was to have GLEANINGS for one year. You got me out of Feb. No. for 1877, and now, according to your statement, you intend to do likewise for Feb. 1878. "Dance up to the music," and when my time is up I will decide the matter. J. C. B.

We have passed the above all round, friend B., but none of us have the remotest idea, what called forth your complaint. If any of the clerks have written crustily or unkindly, perhaps we would better have *them* in this department. We would, by no means, keep back a single No. that is due our subscribers, for after we have all worked hard to make a good Journal, we take great pleasure in handing them over to you promptly. If a number is lost in the mail, or even if it is lost after it comes into your posession, we always make it a rule to replace it without charge, if you will only apprise us of the fact. With the heavy mails we now have to get through with daily, it would be almost impossible for us to have a "spite" against any particular one, if we felt so disposed.

We may be awfully awkward friend B., but I am sure none of us ever try to steal.

FERTILIZATION OF THE QUEEN.

A FURTHER DEVELOPMENT.

I HAVE not witnessed the meeting of a queen honey bee with a drone, but last August I witnessed the meeting of a queen bumble bee and a drone of that species, and if we consider how closely their habits in other respects resemble those of the honey bee, we, probably, will not be very far amiss, if we conclude that their habits in this respect are similar. While busily at work on the porch at honey, my attention was arrested by two bumble bees, one in close pursuit of the other. They appeared to be nearly exhausted, and attempted to light on the posts to the porch several times, but failing would fly around and make the attempt over, which, owing to the close pursuit of the drone, and the perpendicular surface of the posts, was each time a failure. I soon saw by the light colored down on the forehead of the one in pursuit, that it was a drone, and becoming interested, observed their actions closely.

The drone kept very close to the queen, and when she attempted to light, struck against her with such force as to cause her to loose her hold on the post, and fall several feet, when they would resume their flight again with the same results. After several failures, while circling round, they struck my back and fell to the floor, where they mated and remained for a few moments, when they slowly resumed their flight coupled together. After they had risen 4 or 5 feet from the ground, the queen by a series of revolutions of her body released herself from the drone and flew off. The drone continued his flight for a few rods, and fell to the ground dead, and in the condition in which drones of the honey bee family are said to be found under similar circumstances.

It does not look reasonable that a queen bee, whose wings are no more than sufficiently large to sustain her own weight conveniently, should be able to mate with a drone in flight. The probabilities are, they mate while at rest, and release themselves from the drone by rolling themselves rapidly over, several times in succession, when a few feet from the ground on their return home.

Queens seldom become fertile before the 7th or 8th day, and I have no doubt that they can be fertilized in confinement, if taken at about that age, and placed with drones under a frame a few feet high and covered with gauze sufficiently strong to confine them. It should be placed where the stimulating rays of the sun will fall on them, and be protected from all drafts of air. Probably a feed composed of honey mixed with peppermint essence given to the colony containing the young queen, on the day previous to the one on which the attempt is to be made, would help to bring about the right condition.

JEROME WILTSE.

Rulo, Nebraska, Feb. 14th, 1878.

I am inclined to think the above gives us the correct solution of the manner in which the queen frees herself, although it seems none of those who claimed to have witnessed the meeting, ever suggested as much. If you allow a bee to sting your hand without molestation, he releases himself, in precisely the way mentioned, by revolving his body around the point of attachment; and it looks quite reasonable to suppose this is the mode that instinct teaches both queens and drones.

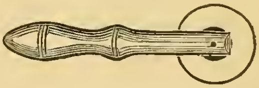
I have no faith, my friend, in fertilization in confinement, for all the conditions you and others have mentioned, have been most carefully complied with, in hundreds of instances, by our most careful experimentors. Let them fly, as God intended they should.

CARLIN'S FOUNDATION CUTTER.

CAN you make me something like the cut below, for cutting fdn., and if so what is it worth? The cutter to be round, of steel, thin and very sharp. The cutter to turn when cutting so as not to draw the fdn. as a knife sometimes does. To be the size you think will best answer the purpose.

C. R. CARLIN.

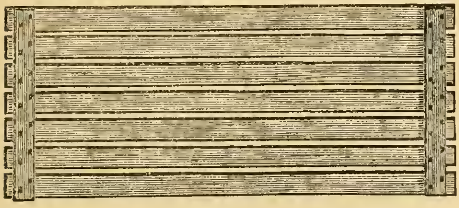
Shreveport, La., Feb. 11th, 1878.



CARLIN'S FOUNDATION CUTTER.

Heigh-ho! friend Carlin, the machine works to a charm, and it does not need soap, slippery elm, nor starch either, on the cutter. Within an hour after your letter was received, we had made one, of a round piece of tin punched out with a round punch, flattened and sharpened with a file at the edges, put into a cheap wooden handle, and found that fdn. could be cut as fast as you could wheel it around the sheets. If you will allow us to manufacture them at 10c. each, I will pay you $10.00 for the idea.

Now I think I have made an invention in connection with the cutter, and here it is. If you wish a great number of small sized pieces, such as we use for section boxes, make a frame of thin pieces of wood, like the following cut:



FRAME FOR CUTTING FDN. STARTERS.

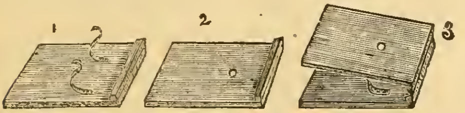
Lay it on top of your sheet of fdn. and run your tin wheel in each crack. Carefully, lift your frame, place it at right angles, cut through as before, and you will have a great number of square pieces, exactly of a size, square and true, and yet they are all made by a few long cuts. If you wish your pieces oblong, make two frames, with the strips of wood of different widths. If you wish them triangular, place your frame at an angle the second time you cut.

To cut sheets for the brood frames, make a board just the size you wish, lay it on your sheet, and run the cutter round it. You can cut two or more sheets at once, but they are not done quite as nicely as when you cut but one at a time. I think we all owe friend Carlin a vote of thanks.

HOW TO MAKE A SMOKER.

GET a soft smooth piece of sheep skin, 2½ inches wide, and 22 inches long. You will also want two narrow strips, ¼ inch wide, and the same length as the above. The three should not cost over 10 or 15c., for a whole piece of the leather large enough to make six smokers, costs only 50c. Two boards 5x6 inches, and about 5-16 thick, are all that is necessary to finish the bellows.

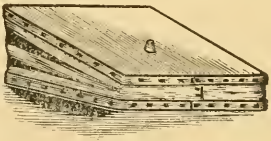
A strip of wood ½ inch wide, and the same thickness as the boards, is securely bradded to one end of each board, as shown in Fig 1. These strips are somewhat thinner at one edge, as shown.



BOARDS FOR SMOKER BELLOWS.

Figure 2 shows the upper board, with the single ½ inch hole bored near one end. Fig. 3, shows the two in place, just ready to tack the leather on. The springs shown at Fig 1, are made of bits of clock spring, to be had of any jeweler. You can get a whole clock spring for 20c., which will make 6 smoker springs. Bend the springs to the shape shown in the cut, and rivet the end to the wood, by two secure rivets. Steel springs sometimes break, it is true, and you can use similar ones made of brass if you choose; these never break, but they almost always lose their elasticity sooner or later. For my own use I prefer the light springs called alarm springs, because they are softer, and it is easier to work the bellows. As others generally prefer a stiff spring, those we sell are made that way. Bend your springs so that the boards will come up promptly, as far as the leather will allow. To make a neat job, you should put on the leather with tinned tacks, about 7-16 in length. Put the boards as closely together at the end where the hinge is, as the two strips will allow them to come, and tack one end of your long piece of leather. The boards should be separated at the other ends, as far as the width of the leather will allow. Draw the leather close up to the wood, and tack at intervals. Now tack the ¼ inch strip on for a binding; if you wish a pretty job, use red morocco for these last. When your tacks are all in—I would drive them a little more than ½ inch apart—you are ready to pare off the surplus leather with a very sharp knife. Finish off everything neatly with sandpaper, and your bellows is done. The leather has cost us 10c, the two boards, possibly 5c, and the springs 5 more. Allowing 5c for your time in tacking on the leather and sand-papering, and you have a good bellows for 25c. It should be as good as anything in the market, for this price. The sample that I had to work after, was purchased from a bellows manufactory, and they charged 40c each for them, by the hundred. Theirs contained a valve, but after carefully trying those with valves and those without, for bee smokers, I have decided I can see no advantage in having a valve. Fasten the valve so it can not work, in your best smoker, and see if it does not answer just as well.

As liquids or gasses flow more rapidly through an orifice that is made smooth, with the corners rounded off, the hole in the upper board, should be rounded off on the inside corners, or what is better, a short tin tube with a slight taper and the inside end made flaring, might be inserted; this may project through the board, ¼ or ⅜ of an inch. I think you will find it will blow "right smart," and it will probably look something like this:

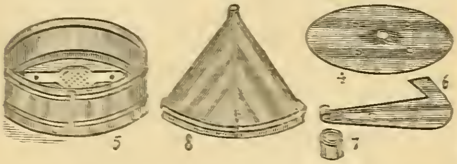


BELLOWS COMPLETE.

Now, if you choose, you can have a tall tube made, placed at one side of the bellows, like Quinby's and Bingham's; but I decidedly prefer the compact, more nearly spherical form, as shown over the leaf.

I find it easier to build a fire in, less liable to go out, and I like better having the jet of air go out of the bellows and through the fire, without having to turn a corner. The obtuse nozzle is easier to clean, and if the fuel is cut small, it may be fed without taking off the cap at all, which is quite an item when the case is hot. The tin cup shown below, is 4 inches in diameter, and 2½ high, and the nozzle is made to shut closely over it. I prefer about a ½ inch hole for the exit of smoke.

Now I take considerable pride in telling you how I attach the whole to the bellows, damper and all, for I consider it quite an invention in the way of cheapness, strength and simplicity.



SMOKER "DISSECTED."

Fig. 4 represents the bottom of the smoker cup. The large hole in the center is to allow the blast of air to come up through, and the smaller ones are for 4 common screws that attach it to the bellows. To prevent the fire from falling through the large hole, a piece of tin is cut as in Fig. 5, and punched full of holes, so as to leave a deep bur on the upper side. This allows the blast to pass through, but no fire ever gets down into the bellows. The holes in the extremities just match those in Fig. 4, so that the same screws hold it securely in place. Now we cannot screw the fire receptacle directly on to the wood, because it would burn it; but I have found by experiment that 1-4 inch space between the bottom and the wood, is all that is needed, if the wood is first covered with a sheet of tin. Accordingly, we cut another plain piece of tin, exactly like Fig. 4, holes and all; between the two, we put short tin tubes, made by rolling up short strips 1-4 inch wide. These short tubes shown at Fig. 7, are made so that a screw will just go through them. One thing more, and we have all complete. Our smoker burns so fiercely, that we are obliged to have a damper for it. This damper is made of a piece of tin, cut in the shape shown at Fig. 6. When the smoker is put together, the hole in the damper is put just over one of the short tin tubes and is thus held by one of these same screws. When it closes the central hole in Fig. 4, the end 6 is against one of the other tubes.

It has been suggested that the screws would get hot, and burn the wood, but actual practice shows that the small amount of heat that comes directly on their heads only, never heats them at all. The constant stream of cold air that is coming out and going in, between the wood of the bellows and the tin cup, is probably one reason why it never heats downward so as to affect the bellows. The hole in the center, Fig. 4, should be sunk by a suitable punch, so as to more perfectly collect the entire blast from the bellows. The tin cup will probably cost you, at a tin-smith's about 5c., and the funnel probably as much more. The damper, short tubes etc., will cost about another 5c., and this will make your smoker complete, cost about 40 cents. Good strong boxes for mailing will cost about 5c., and this leaves us 5c. profit on each when they are sold by the dozen. The tin work can be made for even less, on the long tube Quinby style, even the largest sized tubes. Any dealer in bee-keeping supplies should be able to make them at the above estimate, and if machinery is employed, they may be made for a less amount.

PATENTS ON SMOKERS.

Mr. Quinby made the first bellows smoker, having the receptacle for fuel placed at one side of the bellows. It was pronounced by all, a very simple matter, after the idea was first suggested to them by our friend Q., yet simple as it was, it cost him a great amount of study and experiment. Friend Nellis remarked that he had an old garret filled with models of smokers of different forms, before he first gave one to the world. Very soon after they came out, I wrote him the price was needlessly high. He asked me how low I would make them; I replied I would make 100 for 75c each. He soon reduced the price. I wrote they should be made by machinery, and that the price could be reduced still lower. For the purpose of doing this, I asked him how much money I should pay him for his smoker business. He declined to accept any money, as did Mrs. Quinby, after his death, and also Mr. L. C. Root. Under the circumstances, I, for some years, declined to interfere with the business, even though I knew I could benefit the people by making a smoker much cheaper. I felt that it ought to be done, but yet it seemed hardly right to copy our esteemed friend's invention. Mr. King of the *Magazine*, it seems thought differently, for he advertised an imitation, at $1.00, and called it the Quinby Smoker.

Sometime after, Mr. Bingham made what I called a Quinby Smoker, and when he sent me one to try, I remonstrated somewhat. He replied it was not a Quinby smoker. It seems to me it was, and is yet, but I presume every body will have their own opinion in regard to such matters. Mr. Quinby had never made any attempt to get his smoker patented; on this account I felt all the more reluctance in copying him. Later, when Mr. Bingham began to sell a great many, I felt it my duty to try to furnish a good article at a low price; but rather than copy Quinby, as King and Bingham had done, I began experimenting with the form I have shown you above, never thinking anybody would call mine a copy of the others. Bingham had omitted a valve; this I approved, for I would omit every thing about implements not absolutely necessary. In my experiments, I omitted the other valve also. I should be very glad to be able to omit the springs, for they sometimes break, and I am not sure but that we shall soon do it. Perhaps we may omit the bellows too; and finally, who knows but that we can in time omit the fire, and just blow "onion juice" or something of the sort, in the bees' eyes when they get "obstreperous?" I have already tried aqua ammonia, in a bellows smoker, and it drives them very well for a little while.

Now about the patent; I believe Mr. Bingham has a patent on his smoker, and although I have not taken the trouble to hunt up his claim, I suppose it is on the arrangement that he calls the direct draft. On page 114 of Sept. No. of GLEANINGS 1875, you will see that a subscriber writes that if a small hole is punched in the lower end of a Quinby smoker. the fire will not go out. I remarked that since my own had become rickety. it did not go out. and it was loose just where the blast enters the tube that holds the fire. allowing a draft of air to enter there all the time. That old Quinby smoker is still in my possession. Mr. Bingham was one of our subscribers at that very time. His smoker is so made as to leave an opening at all times. in that very spot. If I am not mistaken. several of our readers sent in sketches of direct draft smokers. before Mr. B. gave his to the public.

The Bingham smoker is certainly an improvement over the Quinby. in making larger tubes for the fire. but making a thing larger. can scarcely be called an invention. A patent was granted. Very true. but so was a patent granted on making honey comb artificially; as good a patent as ever was. and I stood out of the way. and let our friend Perrine. carry off my machine. and raise the price of fdn. from 75c to $1.25 per lb. Our friend King of the *Magazine*. with commendable zeal. hunted up some old volumes of the *Bienen Zeitung*. and away went Perrine's patent. like smoke. The patent office would without doubt give any one a patent today on artificial comb. or a Quinby smoker. It is utterly impossible for them to tell whether a thing is new or not. Worse than that. they seem. of late. to be utterly incapable of telling what has already been patented. for patents have been granted several times. on precisely the same thing.

I do not wish to be stubborn. and I am willing. I think. to pay for all I receive from any one: but who will tell us just what is right in these matters? I should willingly have paid Mr. Quinby a couple of hundred dollars for the privilege of making his smokers. just because I wanted to see them sold at what I thought would be a fair price. and because I knew a large sale would follow such reduction in price. I am willing to pay Mr. Bingham for his invention if good judges in the matter say I am infringing: but I certainly think I ought to pay Mr. Quinby's widow five dollars where I pay Mr. Bingham one. If. on the other hand. Mr. Bingham is wronging our people by trying to make them pay $2.00 for a smoker that should be sold for less than one. having no patent that would stand law at that. as is the case with most of the bee-hive patents. I think it my duty to sift the matter by law. if it cannot be done otherwise.

P. S. Who will devise a bellows that will give us a *constant* blast? Some sort of a double bellows. it seems to me. can be made. so that one will open while the other is closing. No springs will then be needed: but the difficulty seems to be. to construct it so as to be easily operated with one hand. A little fan. to be run by gearing. would work nicely. but it would take both hands to turn it. This would give a steady blast.

It has been intimated that our smoker was inconvenient to pick up. As the bellows is only five inches wide. the thumb and finger will easily span it. and I would call it even more convenient than the tall ones; but you must all judge for yourselves in such matters.

DEPOSITORY OF
Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

BLASTED HOPES. WITH SOME GOOD LESSONS.

LET me beg an introduction to the numerous readers of your excellent paper. I have kept bees 23 years. bought the right. and used the first Langstroth hive in McLean Co.. and still use the L. hive. though not in the original form.

I have sometimes been successful. and have often met with losses; The year 1872 was the most disastrous: bees made but little honey. and though I had no swarms. the season closed with 170 stocks. and few. if any. had enough honey to carry them through the winter. Instead of doubling them. as I should have done. I fed 126 dollars worth of sugar. and lost. during the winter. 154 stocks.

Succeeding losses reduced my number. and in May. 1876. I had but six. and one of them queenless.

I have now 66 stocks in good condition. on their summer stands. well protected by placing 7 or 8 frames in the centre of the hive with division boards. the sides filled with tow. tops covered with quilts. and caps filled with chaff and straw. Bees flew 12 days in succession in December. and two of mine flew so far. they never came back. taking hives and honey with them.

Last year I took especial pains to fix my bees for winter. They were light. having only about 17 lbs of honey to the hive: so I bought paper. such as is used to cover buildings. cut it in pieces just large enough to cover the front. bottom and back of the hive inside. with small holes in front for an entrance. and transferred the bees to the centre: thus making with the division boards. a complete double hive: I was so well pleased with the way they were fixed. that I was preparing a report for Gleanings something like this. "Wintered 66 stocks of bees. in paper lined hives. without loss." but finally concluded to make a verbal report. as I intended to stop at Medina on my way to to the Centennial.

Now for the result. I examined the hives Jan. 16th and found the paper soaking wet: had to overhaul and take them all out. and lost about ½ of the bees. I didn't go to the Centennial. didn't visit Medina &c. but learned two things. viz. that bees don't require papered rooms. and that it is of little use for an old man to form plans of life.

J. L. WOLCOTT.

Bloomington. Ills. Feb. 17th '78.

There has been a great deal of talk. and several patents on paper for use in bee-hives. My experience with it. has been much like that of friend W. I have also had some experience much the same as his in buying sugar for weak colonies.

WE can deliver hives in the flat. or Simplicity hives made up. in N. Y. City. for $1.00 per hundred. The simplicities are so compact. with no projections. that we have been allowed to ship them at half the usual rates on bee hives. when as many as two 2-story hives are ordered at one time.

* * *

OUR friend H. H. Flick. has still another follower in the "Ambrosial honey" business. This one calls himself W. H. Chidester. hails from 218 Fulton St.. N. Y., and calls it Crystal Honey. His advertisement is almost word for word. like the one we showed up in "Humbugs and Swindles" of June. 1875. These fellows usually copy each other verbatim. from year to year. but this one has brains enough to invent one new line. to the effect that the "Crystal Honey will neither congeal nor 'cander'." Does anyone know what "cander" means? The price of the "right" has come down to $1.00. and if you tell anybody else. he says. "the law exacts heavy penalties for the smallest breach or infringement."

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, MAR. 1, 1878.

How can ye believe, which receive honour one of another, and seek not the honour that *cometh* from God only?—John, 5; 44.

J. OATMAN & SON'S price list of supplies is at hand, and it is a real pleasure to look it over. That they are live, wide-awake, hard working business men, is plain to be seen; as their prices are low, and no patents, I am sure they will have a large trade, and do much good. Whoever produces good work, at low prices, is a public benefactor.

DEALERS in Bee-Keepers' supplies should look out for W. R. Story, of Sunbury, Delaware Co., O. His specialty seems to be alsike clover seed. If he can not get it without pay, he orders it sent C. O. D., and then never calls for it. As we can get no letters from him, we take this method of asking him to "rise and explain," if he does not wish to go among "Humbugs and Swindles."

I AM "just as mad as can be." It is because the *A. B. J.* has gone and kicked my smoker over, and then said all sorts of naughty things about it; that they would get fire into the bellows, and break, and that they had all better be put into the fire, &c. If they don't stop "abusin' of me," and saying that I infringed on their patents, when I kept out of their way, and tried ever so hard not to step on anybody's toes that ever made smokers, I will go and invent something better than them all, just for spite.

WE have just finished a fdn. machine having rolls of solid copper, for friend Betsinger. It is perhaps the finest piece of workmanship of the kind Mr. Washburn has ever made, and was made after Mr. B's order, for the express purpose of rolling copper wires into the fdn. Several rolls had to be made, before we could get a good clear solid copper casting. Mr. W. says he would want $125.00, to make another like it. I do not think copper rolls have any special advantage over the soft metal ones, unless they are to be used for rolling wires into the fdn. Mr. W. thinks he can make a machine to roll thinner fdn., of the soft metal, than of copper, because the rolls will then wear to a perfect fit, sooner than they would with the hard metal. All machines grow better with use.

A. E. MANUM, of Bristol, Vermont, has sent us a sample section, that for beauty of finish of the wood, surpasses anything we ever before "sot eyes on." He calls the lumber "Popular," and I havn't a doubt of it, for its beauty, after being finished up as friend M. has the sample pieces, *must* make it "popular" wherever it is seen. There seems to be quite a misunderstanding in regard to the tree called Poplar. So much was said by our Southern friends about the poplar honey, that I asked for samples of the leaf. Several sent them, but they were all our common whitewood, or tulip (*Liriodendron, Tulipifera*). Botany describes the aspen, balm of Gilead, &c., as belonging to the family of poplars, but gives no authority for calling *whitewood* poplar. My impression is, that the true poplar never bears honey at all, but has a round leaf that "quakes" in the wind; and perhaps it is this that gives us lumber that is almost as white as white writing paper, as friend Manum describes it. We thought our clear pine was nice, but this leaves us "away out in the cold." Hurry up boys, and do not let those "Down East" Yankees beat us on section boxes. Friend M. offers to anyone, a sample box free. If they were only dovetailed, instead of being made for nailing, this notice might almost swamp him, and I do not know but it will as it is; he should not be so liberal as to offer a sample free, for we are a great people, when one sends goods free, and pays postage too.

A FEW days ago, somebody came up behind me, while I was writing with my type-writer as now; the gentleman looked very pleasant and smiling, but they always do when they come to ask questions, and so I am afraid I did not look very cordial, as I rose. I am really sorry my friends to be uncourteous, but what shall I do? We have now between 25 and 30 hands employed, our buzz saws are running day and night, without stopping, and still we are not getting ahead of orders. The compositors are asking for copy, and piles of letters lie all round me, waiting for directions in regard to their contents. Yesterday I was unable to even so much as read my letters hastily. Down home there is another blue eyed little girl only 6 weeks old, and if I stop when I go to my meals to get a glimpse of her and to see that wonderful smile of recognition that the children are telling so much about, I almost feel guilty because it takes so much valuable time. Last night I wrote until after 11 o'clock, and I am at work again this morning before 6. Now, I am not saying all this to complain, but only as an apology, for not answering all the kind letters that are sent me. I have been thinking that you might get a number of GLEANINGS pretty soon, announcing that I was found "gone crazy" amid a heap of letters all covered with interrogation points.

Now, ask as many questions as you please my friends, but do not scold, if they remain entirely unanswered. I can not advise you about going into bee culture; nor about buying queens instead of raising them; nor about the outfit you need for your capital; nor about choosing a location; nor whether you can make bees pay or not. Neither can I tell you the price of bees, hives, nor of scarcely anything else, unless I go and look at one of my own price lists. I once deliberately decided on what I could furnish all these things for, and had it put in print; and soon as I find I can decrease the price, it is done in print. I believe the price of GLEANINGS is $1.00, but I shall pretty soon forget that, at this rate. I know it is something of a task to hunt over the price lists, but what better can I do? You may ask the clerks all the questions you please, but I am afraid they will give you answers that are not nearly as reliable as the A B C and price lists. We can not answer you safely, yes or no; the answers almost all need to be given conditionally, and you will generally find the conditions given in the proper place.

A customer asks the price of a bee hive; before answering, I want to know if he wants it for sections, or for the extractor; one or two story; with fdn. starters, or without; with tin separators, or without, &c. Perhaps he says he does not know, and asks what I would advise. Now my friend I hardly know how I can advise, unless I know what progress you have made. It is by far the best way for you to study, and get some bees and go to work. You will very soon find out what you need, without asking advice of any body.

Well, the gentleman I have kept waiting so long, did not ask questions; at least, not the same stereotyped ones that have been asked so often. He said his name was J. H. Nellis. Did you ever get really well acquainted with any-body in business transactions without ever seeing them, and then have some utter stranger come in and pleasantly tell you that he is the man? How queerly it makes one feel, especially, if you have imagined a different sort of a person. The type writer was laid aside, and I cannot tell you, how much good his visit did me. Perhaps work got behind a little, but this time, *I* had a "powerful sight" of questions to ask, about queen rearing and other things, and you will probably hear about what friend Nellis said, for several months to come. May God bless the York State bee-keepers.

After the kind visits of Doolittle, Betsinger, Nellis, and others, I have always felt that they did me much good. Friend Nellis expressed the idea, exactly, in saying "it takes the conceit out of a body, to visit somebody else in the same line of business," and I really fear if you put it in that way, I ought to go "visiting" all the time. After such friends go away, I feel for sometime after, as lonesome as I used to when a boy, when my brother of nearly my own age used to be absent. I would dearly love to visit all my friends, but O dear me, who will answer the letters and postal cards, especially those that complain so bitterly, because I do not answer a civil question?

One more swarm of bees has starved, just because I wanted to look after the bees *myself*; but I was finally obliged to set somebody else at the task of looking them over, to see if any had used up their stores during this warm winter.

I fear it will be of no use to ask for lower prices on goods, even if taken in quantities, for I shall feel happy if I am able to fill all orders promptly and carefully, at the prices given in our catalogue

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Extracted Honey. Continued from last month.

Again; new honey, has, many times, a rank disagreeable odor and taste. I have been told that in the Eastern States much honey is sometimes obtained from the fields where onion seeds are raised for the market, and that this honey when first gathered, is so strong of onions, that it cannot be used. In a few weeks however, this rank and disagreeable flavor is all gone, and the honey is very fair. Few persons can tolerate the strong aromatic flavor. of bass-wood honey when first gathered, and some of the jars I have mentioned, when opened, gave one an impression that something akin to turpentine had been mixed with the honey. This was because it had been closely corked when first gathered; but had it have been left until sealed, the unpleasant taste would have been mostly gone. I say mostly. for even sealing does not seem to entirely remove the rank flavor, unless the combs have been some weeks in the hive. A few days ago I took a beautiful looking piece of comb honey out of a jar that was found in the market. On opening the cells I found the honey had such a rank bass-wood flavor, that it was to me quite disagreeable, and yet I am fond of the bass-wood flavor. Very white new comb honey, is seldom of the fine pure sweet flavor, of honey that has been a long time capped over, such as is found in the dark looking comb. To which shall we give the preference, looks or taste? In 1876 we were so busy that we could not attend to extracting, and so we raised the filled stories up, and put those filled with empty combs just under them over the brood. This occupied little time, and the bees were not hindered in their work, a single moment. I have never seen bees amass stores faster. Some hives filled 4 stories to repletion, and the whole was left on the hives until the latter part of the summer. In fact, I left them on the hives to be safe from the depredations of the moth, intending to cut out the honey and sell it in the comb, or to extract it, whichever form should prove most marketable. This honey was cut out of the frames and sold the following winter, and it was the nicest and richest honey I ever saw or tasted. To my astonishment, the liquid portions that ran out when the combs were cut, would not candy at all, even when exposed to a zero freeze. The honey was so thick, that a saucer full could be turned over, without spilling, and it had a bright crystalline clearness, compared with ordinary extracted honey.

Extracted honey, if taken out while "green" (as I have often termed the unripened state) has a greenish tinge, which well ripened honey has not. Some specimens have a turbid, or cloudy look, and I believe such honey is never really fine flavored. I am well aware that I am condemning the honey I have been selling, by these remarks, but I cannot help it. If I had now, some extracted honey such as was taken from those well ripened combs, I would feel that it was preferable at 25c., to that which I am now selling at 15. Properly ripened bass-wood or clover honey, has a sparkling clearness, like white flint glass, and the flavor is pure and exquisite. I have never seen any nice looking comb honey equal to it, for the market always demands comb honey that is white, and has not remained on the hive, a long time. I do not mean to say that extracted honey should be without color, like water, for it usually has an amber tint, or it may be quite yellow; but it should be clear, so that you can read print without trouble, through a jar of it. After it has candied, if it does candy, it should be hard and free from any liquid portion, like that in unripened honey. This thin liquid portion, is the part that usually changes and gives it the bad taste. In fact, if the liquid portion be drained off, as directed under CANDIED HONEY, the solid portion may be melted, and it will be found very nearly like that ripened in the hive.

HOW TO SELL EXTRACTED HONEY.

Get it well ripened, as I have just told you, and then strain it into clean tin cans, into barrels coated with paraffine, or bees-wax or into some utensil that you know will not taint it in the least. Honey is very easily damaged by anything that will mar its pure flavor, or clear transparent appearance to the eye. If you are going to retail it, you can keep it in a tall can, with a honey gate at the bottom. Set it up at a convenient height, and have a pair of cheap scales directly under the gate, on which you can set the bowls, pitchers or pails, that your customers may bring. You can by this means weigh it out to a fraction, without any dripping or daubing. If it is to be sold in honey jars, set your jars in a basin, under the gate. I say in a basin, for unless you are more careful than people generally, you will get some over the sides, or run a jar over, and it is much pleasanter to have it in the basin, than on the table or floor. I have given the preference to the self sealing quart fruit jars, because every body has use for these, and will be likely to keep them. If the jars are purchased by the gross, they can be retailed with the honey, at a slight advance on first cost, full enough usually, to pay all expenses of handling, and a good interest on the use of the money invested. The Mason jar which we generally use, costs $15.00 per gross, and we charge for them with the honey, 12c. A quart jar holds about 3 lbs. One lb. jars, sell rather better, but we have to sell three times as many and consumers have little or no use for the jars when empty. I think it will be well to keep both kinds on hand, as well as some half lb. tumblers or jelly cups, for the multitudes who want "just a little" for one reason or another. If you commence giving a little without any charge, now and then, you will find the demand a severe task on your time as well as honey, and if you have these small packages all ready at hand, for 10 or 15c., you will find a great many will be sold in the course of a year.

If you wish your honey to keep from candying, seal it up hot like fruit, as directed in CANDIED HONEY. The self-sealing fruit jars need no directions, but the bottles with corks will have to be made tight with melted bees-wax. Dip the corks in melted wax until they are perfectly coated on both sides, and then push them in place while the mouth of the jar is hot, and perfectly *dry*. If it is wet, or has the least particle of honey on it, you can never make it air-tight. To make a neat job of it, you can dip the mouth of the jar carefully, in some bright nice yellow wax, and then you will have it, as far as possible, protected from the air, with a capping of wax, precisely as the bees do it.

This thin, watery honey, when heated to melt the candied honey, with which it may be commingled, even if it is exposed to a heat much less than the boiling point, will turn a dark reddish color, and the flavor is something as if the honey was burned slightly. I, at first, was inclined to blame my wife for overheating it, when I desired her to make the experiment, but as the honey was white when this liquid portion was entirely drained off, I finally guessed at the truth. We can get some beautiful pure ripe honey, out of a very bad lot, by draining the candied portion for several weeks, and then melting it.

To give you an idea of how extracted honey sells in our cities, I give you a few notes from a friend on the Cleveland market, to whom we have sold several barrels of honey during the past six months. The honey was put up in Muth's 1 lb glass jars. Each jar was labeled, wrapped in a sheet of clean paper and packed in sawdust, in the same boxes that the jars came in. To prevent the boxes from being "dumped," we nailed strips of wood to each side of the box, rounded off the projecting ends to make convenient handles, and shipped them as freight. The R. R. employes, I suppose looked at the smooth handles, knowing at once what they were for, read the label that kindly asked them not to "dump," and the consequence is, not a single bottle has ever been reported injured. Were you a "R. R. man," you would probably do as R. R. men do. Here are the letters.

That honey sold quickly this morning. If you can furnish me that quality, I can sell it. Send the other as soon as possible. L. B. OVIATT.
Cleveland, O. Aug. 16th 1877.

We received the one lb. bottles last Friday; put them on the stand Saturday, and retailed 44 of them that day. If you can furnish me that kind of honey I can sell it. The small bottles I have just got from the depot, all in good shape. Please send 12 doz. lb. bottles as soon as possible. Get them here Friday if you can. L. B. OVIATT.
Cleveland, O. Sept. 3rd '77.

I shall want some honey in a few days. Have about 30 of the lb. bottles left yet. The lb. bottles sell best. I am getting very nice comb honey now for 19c per lb. which is hurting the sale of bottled honey. I do not think that will last long. Your honey gives good satisfaction. I seald a few bottles at a time and it makes it look very nice. I will order in a few days. L. B. OVIATT.
Cleveland, O. Nov. 8th '77.

Please send me a case of honey if you can send it like the last shipment. That is thicker and better flavored than the other and sells rapidly. Send it in the 1lb. souare bottles. I want it the first of the week. I did not know I was so nearly out or I would have ordered before. I am about done with comb honey and I can sell bottles fast after this, if it is nice. What is your price for those tin cans for filling bottles? L. B. OVIATT.
Cleveland, O. Feb. 22nd 1877.

Mr. O. paid us 16c for the 1 lb. bottles, put up in the way I have mentioned. The one lot that he did not like, was some unripened honey, that we purchased of a neighbor.

Some attempts have been made to get honey into a marketable shape in its candied state, but so far, have been unsuccessful, so far as I know, although candied honey can be drained out so dry that it may be done up in a paper safely, and we have had some specimens, nearly as white as loaf sugar.

EXTRACTOR. The advantages and disadvantages of using a honey extractor in the apiary, are considered under head of extracted honey. That more honey can be obtained by the use of the machine than by having it stored in section boxes in the shape of comb honey, all are agreed; but all are not agreed, as to *how much* more. If it is nicely sealed over, as it should be before being extracted, I do not think more than twice as much will be obtained, on an average, although the amount is placed by many, at a much higher figure. A beginner will be more certain of a crop, than if he relies upon having the bees work in boxes; he will also be much more apt to take away too much, and to cause his bees to starve. This last, is a very disagreeable feature, attendant upon the use of the implement, especially, where the bee-keeper is prone to carelessness and negligence. To secure the best results with the extractor, plenty of empty combs should be provided, that ample room may be given, in case the hives should become full before the honey is ripe enough to remove. If a second story does not give room sufficient, I would add a third for a heavy stock, during a good yield of honey.

Full directions for using extractors, are given with the price lists that manufacturers send out; therefore I will not repeat them here.

HOW TO MAKE AN EXTRACTOR.

Although it will not usually pay to make your own, there are circumstances under which it is very desirable to to know how. In places so remote that the shipping rates are very high, it would be well to have some bee-keeper of a mechanical turn, make them to supply those in his own vicinity. As the manufacture of implements and supplies is getting to be quite a business, the machines can probably be manufactured at many different points. Whoever does the best work, will probably get the most orders.

Experiments have been made, almost without number, and the general decision now seems to be in favor of a machine made entirely of metal, with everything stationary about it except what *must* be revolved. The momentum of heavy metal, revolving cans, or honey after it has left the comb, defeats the very object we have in view, and nothing will so effectually convince one of the difference, as an actual trial of the two machines side by side. With the light, all metal machines, the comb is revolved at the speed required almost intsantly, and as soon as the honey is out of the comb, the operator is aware of it, by the decrease in the weight of it as he holds the crank in his hand; but with the heavy, unwieldy machines, the stopping and starting, takes more time than doing the work. The same objections apply to making machines for emptying four combs at once. They require to be made much larger, and are correspondingly heavy and unwieldy.

A reference to the engraving of the extractor with its inside removed, will enable almost any tin-smith to do the work. The gearing had better be purchased from a dealer in supplies, and if you should have any to make, it may pay you to have them cast, using the sample for a pattern. The shaft of of the inside part, is made by rolling up a tin tube, double thickness. This is quickly and nicely done with the machine the tinner uses to make the bead on the edge of eave spouts. The frame work, is made of folded strips of tin.

For a Langstroth frame, we make the shaft the full length of a 14 by 20 sheet of tin. The corner pieces are made of a strip 2 inches wide, by 14 long, with a seam folded on one edge, and a square fold of ¼ on the other. The bars that support the wire cloth, are six in number, including the top and bottom ones, and are made by folding one inch strips of tin, three times, so as to make a stiff rod of metal. They are 10 inches in length, and our revolving frame is 10 inches one way, and 11 the other. For greater security against sagging, we run a similar rod of metal, up and down, across the middle of these bars, and still another lies flatwise across this, to brace the whole, something like a truss bridge. This gives a surface very stiff, and yet very light. The wire cloth, which should be tinned, like all the other metal work, is made of stiff wire, 5 meshes to the inch. It may be well to remark here that neither zinc nor galvanized iron should ever be used about honey utensils. The acid principle in the honey, quickly acts on all oxidizable metals, and galvanized iron though bright in appearance, quickly poisons the honey, or even pure water, as has been proven by experiment. Two sheets of wire cloth, 15 inches long by 10 wide are needed for an L. extractor. They are simply laid inside against the metal bars and tacked with solder. To cover the ragged edges at the top and bottom, we fold a strip of light tin 10 inches long by ½ inch wide, at a right angle, so as to make a square trough, as it were; this is soldered on the top rod, so as to cover the upper edge of the wire cloth. A strip of wire cloth, 15 inches long, and 4 wide, with the edges hemmed by folded strips of tin, is put across the bottom, to support the frames. Two inches from each end, it is bent at right angles, and then ¼ inch from each end, still again, that it may catch securely over the lower bar of the frame. The frame is completed by the cross pieces at the top and bottom, to hold the two wire cloth frames at the right distance apart. These are strips of heavy tin 1½ inches wide, by 11 inches long. A seam is folded on each edge, so that the bars are left only 1 inch wide when finished. At each end, a ¼ inch is folded square, to catch over the outside of the frame where it is soldered.

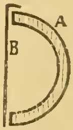
Now to attach this frame to the shaft, is a matter somewhat important; for if we use too much of a broad surface, with our arms, they will "blow" like a fanning mill, and we shall have a current of air, that will carry with it a fine spray of honey, over the top of the can. This is a most grievous fault, for who likes to have honey daubed over his clothing? Our first machine was made so that the combs revolved only ½ inch below the top of the can, and yet we never had a particle of honey thrown over. This frame was made very light, indeed, and when heavier and stronger machines were made for sale, we were much puzzled to hear an occasional complaint, that the honey was thrown over the top of the can, in a fine spray. I soon found by experiment, that it was caused by the braces being placed flatwise to the line of motion. How to make them strong and stiff, without catching the air, was the problem. We do it nicely, by using 12 braces, made of heavy tin, with a seam folded as just mentioned. The 12 are formed of six pieces. The 6 pieces are laid across each other in pairs, forming 3 letter X's. Each letter X, has a hole punched at the crossing, large enough for the shaft to be driven through; when it is soldered securely, the ends are bent down, and attached to the corners of the frame as shown in the engraving. The lower X, also supports the wire cloth that the frames rest on, by being tacked with solder where it passes them.

The gearing is attached to this revolving frame, by driving the small gear wheel, into the end of the hollow shaft, and soldering it securely. The casting is first well tinned by a soldering iron, that there may be no slipping loose.

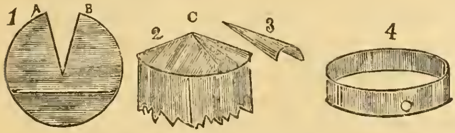
MAKING THE CAN.

There is nothing difficult about this, except the bottom of the can. It had been for a long time, quite a problem to get a strong stiff bottom, without some kind of a wooden support, but I struck on the idea, while trying to devise some kind of a bottom that would let the honey all out, the gate or faucet being the lowest part. I will tell you, presently, how I did it. The top edge of the can, must be stiff and rigid; more so than we can get it, by any kind of a wire or rod. I found some very stiff hoops, that were made for milk cans, and it is these I would advise. They are so made as to give great stiffness, with but a small amount of metal.

We present a view of a cross-section of the hoop. The concave side, of course being inward. A, is the hoop and B, is the tin, of which the can is formed. The can is made of four sheets of 14x20, IX tin. For an L. frame, we need a hoop just 17 inches in diameter. For large sizes, we use 20 inch hoops. The two sizes mentioned will accommodate almost any frame used, and we therefore furnish gearing for only these two sizes. After you have made the body of the can, and have your hoop nicely soldered on, you are ready for the bottom.



Lock two of the sheets together, and cut a circular piece 18 inches in diameter. From one side, cut a wedge shaped piece, as shown in the cut below.



HOW TO MAKE THE BOTTOM TO THE CAN OF THE EXTRACTOR.

The space A B should be about 2 inches in width, and after cutting it out, you are to fold down the edges A B about ½ inch. Draw the edges A B toward each other, and you will make the bottom concave, as shown in Fig. 2. They can be held in this shape for the time, by a slip of tin tacked with solder across the gap, temporarily. Turn over the edge and put this bottom on the can, in the usual way. The opening left is for the channel that leads to, and holds the honey gate. Cut a piece of tin similar to the wedge shaped piece you took out, but somewhat larger. Fold this up trough shaped, as shown in Fig. 3, and fit it over the opening. We are now ready to solder in the gate, but we must have something for our can to stand on. This is fixed by a tin hoop, with a heavy wire at its lower edge, made just large enough to slip closely over the lower part of the can, as seen in Fig. 4. This hoop, or band rather, should be about 4 inches wide, and in one side you are to punch a round hole, just large enough to take in the gate. Solder it securely in place, put in the gate, and then be sure to try your can by pouring in some water to see if it will "hold." We do not want any leaking after we commence extracting honey.

Now, in the centre C, on the inside, we solder a piece of steel saw plate; over this, we put a blank iron nut, with a ¼ inch hole drilled in it. This is to hold the bottom pivot, which is made of refined Stub's steel, nicely rounded and polished off on the point. As the bearings for the gearing are all cast steel, our machine should almost run of itself, if everything is made just right. The steel pivot at the bottom is soldered in the end of our tin tube, by rolling some thin tin around it until it will drive in tight.

You should never attempt to use an extractor, and I might almost say *any* piece of machinery, until you have it securely screwed down to the box or platform on, which it is to stand. The screw holes are made in the bottom ring just above the heavy wire that rests on the floor. The screws are put in a little slanting. It should also be at a convenient height for easy work. The machine could be made heavy enough to stand still from its own weight, it is true, and it might be made perched on legs, also, to save the trouble of building a box or platform on which to stand it, and if you are making them for home use, it may be well to do so; but if making them to ship to customers, I would never think of sending them anything that they could procure at home; thus saving heavy shipping expenses. I would say the same in regard to making cans large enough to hold 100 lbs. or more, of honey, below the revolving frame. When the extractor is being used, the honey gate is supposed to be open, and utensils can always be supplied to hold the honey, much cheaper than to have the extractor thus enlarged. Those I have described, can be very conveniently worked over the bung of a barrel, or you can have a tin can made on purpose to set under the honey gate.

The gearing for the extractor, including a tinned honey gate, will cost about $2.00. The materials and labor for the inside, should not cost to exceed $2.50. Seven sheets of tin for the can, would be 70c; a half day's work in the making, $1. 25; hoop for the top, 50c, and perhaps the solder and other items, 25c. This would bring the whole cost up to $7.20. Your own time in "bossing" the tinner, and the liabilities of making mistakes, and doing a bad job on the first one, would probably bring the expense up to about the usual selling price, viz., from $7.50 to $9.00. Machines for different sized frames, are made much in the same way; for the American and Gallup frames, we can make a short can, only the height of the width of a sheet of tin, instead of the length. Of course these can be made more cheaply. Where the frames hang in the extractor the same way that they do in the hive, no wire cloth support is needed across the bottom of the comb basket, unless it is preferred for extracting small pieces or bits of comb.

No cover is ever needed over the extractor while at work, for it would be greatly in the way; but after we are through, or only stop temporarily, the machine should be covered to keep out dust and insects. The most convenient thing for this purpose is a circular piece of cheap cloth, with a rubber cord run in the hem. This can be thrown over in an instant and all is secure. When honey is coming in, in an abundance, it may be safe to carry the machine around to the hives, located on a suitable platform, especially if the apiary is much scattered about. But if the bees are disposed to rob, all such attempts will come to "grief," very quickly.

F.

FERTILE WORKERS. These queer inmates, or rather occasional inmates of the hive, are worker bees that lay eggs. Aye, and the eggs they lay hatch, too, but they only hatch drones, and never worker bees. The drones are rather smaller than the drones produced by a queen, but they are nevertheless, drones, in every respect, so far as we can discover. It may be well to remark that ordinary worker bees, are not neuters, as they are sometimes called; they are considered undeveloped females. Microscopic examination, shows the undeveloped germ, of nearly every organ found in the queen, and these organs may become, at any time, sufficiently developed, to allow the bee to lay eggs, but never to allow of fertilization by meeting the drone as the queen does.

CAUSE OF FERTILE WORKERS.

It has been over and over again suggested, that bees capable of this egg laying duty, were those reared in the vicinity of queen cells, and that by some means they have recieved a small portion of the royal jelly, necessary to their development as bee mothers. This theory has, I believe, been entirely disproven by many experiments; and it is now pretty generally conceded that fertile workers may make their appearance in any colony or nucleus that has been for some days queenless, and without the means of rearing a queen. Not only may one bee take upon herself these duties, but there may be many of them, and wherever the bee-keeper has been so careless, as to leave his bees destitute of either brood or queen, for 10 days or two weeks, you may be pretty sure he will find evidences of their presence in the shape of eggs scattered about promiscuously; sometimes one, but oftener a half dozen in a single cell. If the matter has been going on for some time, you will see now and then a drone larva, and sometimes two or three crowding each other, in their single cell; some times they start queen cells over this drone larva; the poor motherless orphans seeming to feel that something is wrong, like a drowning man, are disposed to catch at any straw.

HOW TO GET RID OF FERTILE WORKERS.

I feel very much like saying again, that prevention is better than cure; if a colony, from any cause becomes queenless, be sure they have unsealed brood of the proper age to raise another; and when this one is raised, be sure that she becomes fertile. It can never do any harm to give a queenless colony eggs and brood, and it may be the saving of it. But suppose you have been so careless as to allow a colony to become queenless, and get weak, what are you to do? If you attempt to give them a queen, and a fertile worker is present, she will be pretty sure to get stung; it is in fact, often almost impossible to get them to even accept a queen cell. The poor fellows get into a habit of accepting one of the egg laying workers as a queen, and they will have none other, until she is removed; yet you cannot find her, for she is just like any other bee; you may get hold of her, possibly, by carefully noticing the way in which the other bees deport themselves toward her, or you may catch her in the act of egg laying, but even this often fails, for there may be several such in the hive at once. You may give them a small strip of comb containing eggs and brood, but they will seldom start a good queen cell, if they start any at all, for a colony having fertile workers, seems perfectly demoralized, so far as getting them into regular work is concerned, in the majority of cases.

My friends, you have allowed them to get into this condition, by being negligent in supplying brood when they were on the verge of ruin for the want of a single egg or young larvae, and the remedy now, is to give them a fresh invoice of bees, brood and combs from some other hive; if you wish to make a sure thing, give them at least three good combs of brood and bees. This is almost starting a new colony, but it is the cheapest way, when they get so they will not receive a queen. If the stock has become *very* weak, it may be best to unite them with some other colony for it certainly does not pay to have them killing queens, and tearing down queen cells.

If the fertile workers are discovered when they first make their appearance, before you see any of the drone larvae scattered about, they will often accept a queen cell, or a fertile queen without difficulty. I have, before, advised giving all colonies or nuclei, some eggs and brood just before the young queen is old enough to take her flight; when this is done, there can be but little chance of fertile workers, for they will always have the means of rearing another queen, if their own is lost in taking her flight. Sometimes a fertile worker may be disposed of, by moving the combs into an empty hive, placed at a little distance from the other; the bees will nearly all go into their old hive, but the queen, as she thinks herself to be, will remain on the combs. The returning bees will then accept a queen or queen cell. After all is right, the combs may be returned, and the fertile worker will be—well, I do not know just what does become of her, but I suspect she either attends to her legitimate business, or gets killed.

HOW TO DETECT THE PRESENCE OE FERTILE WORKERS.

If you do not find any queen, and see eggs scattered around promiscuously, some in drone, and some in worker cells, some attached to the side of the cell, instead of the centre of the bottom, where the queen lays them, several in one cell, and none in the next, you may be pretty sure you have a fertile worker. Still later, you will see the worker brood capped with the high convex cappings, indicating clearly, that the brood will never hatch out worker bees. Finding two or more eggs in a cell, is never conclusive, for the queen often deposits them in a feeble colony where there are not bees enough to cover the brood. The eggs deposited by a fertile queen, are in regular order, as one would plant a field of corn, but those from fertile workers, and usually from drone laying queens, are irregularly scattered about.

See that every hive contains, at all times, during the spring and summer months, at least, brood suitable for rearing a queen, and you will never see a fertile worker.

FOUL BROOD. I know of nothing in bee culture, so much to be feared, as foul brood; and I believe it is pretty generally agreed that all other bee diseases together, and we might almost say all other drawbacks, are as nothing as compared to it. It is not a disease of the bees, but of the *sealed brood.* The symptoms are a dwindling down of the colony, because the brood fails to hatch, and when the capping of the sealed brood is examined, it is found to be sunken, instead of slightly convex, as with healthy brood. A little later, the caps are found to have a minute hole in the centre, as if a pin had been pricked through it. It is quite likely that the bees bite these holes through, with a purpose of cleaning out the cells as they do ordinary chilled brood, but becoming disgusted with the sickening sight and smell, they abandon the task in despair. If you take a pin or the point of a knife, and move the matter out of such a cell, you will perceive a strange sickening smell, which is sometimes perceived in simply passing by the hives, when the malady has assumed a very dangerous form. The worst feature of the business seems to be that the disease is communicated to other stocks, by simply carrying honey from an infected hive. This makes sad havoc among bee-keepers who are inclined to be negligent, and various remedies have been given for the malady, many of which are claimed to be perfectly successful, but as the years pass by, one after another of them seems to have been dropped, and the apiarist has been obliged fo feel the the truth of the old adage, that prevention is better than cure. Many who have had a trial of its ravages, among whom are some of our best bee-keepers, advise destroying both bees and hive, by fire or burying, and commencing anew with healthy colonies. This remedy is, I believe, sure; and even if the disease should reappear, by promptly destroying all diseased brood, the very minute it is discovered in the hives, it seem finally, to become totally eradicated. Where the disease prevails, there should be the utmost diligence exercised in guarding against sending it to other localities, either by selling honey, bees or queens. *To be continued.*

STILL LATER ABOUT SMOKERS.

I HAVE no time and less inclination to write you, but feel that a word is needed on this patent question, and I fear no other person will speak. I feel that you are wrong on the matter of patents, and, as in case of smokers, this becomes a practical subject, I am impelled to write.

A man has an inventive genius, and by hard labor labor and thought, day and night gives the world some implement of great value. The world is enriched. Now, if the patentee is rich, he may give the invention to the world, yet it is just as much a gift, as the honey or supper he gives a friend. He has the same right to his creation, that you have to your bees or honey. If he is poor, especially if he has a family, he has no right to give away his invention. To secures his rights he procures a patent. Now to make such an instrument without leave, or to force the inventor to litigation, is, I think, the same in principle as to take his bees.

Again, the patentee is proud of this child of his thought and labor. He wishes to monopolize or control the manufacture, that the articles may all do him honor. He knows that competition will lessen the price, but surely at a corresponding decrease in style and durability. Hence his patent if respected, will most surely give good articles.

Thus a man has a perfect right to procure a patent. It is his property, and the paper is the deed, or security. He desires the paper to secure his own, to insure good workmanship, and to protect his patrons against sham work.

Now as to the public. They need inventions, and to promote their growth they should respect patents. They should frown upon any attempt to depreciate their value. Had Langstroth's patent been respected, how much better off bee-keepers would be. If patents are to receive no respect, or if they are to face costly litigation, then what inducement has a man to strive to bring out an improved tool or machine?

The patentee is a man of inventive genius. He is proud to make a superior article. Men not so interested will make cheap imitations, and all who buy these are defrauded.

Now, to the case in hand; Mr. Bingham has improved the smokers. The bellows, the valves, the style, the finish, the form. In fact his smoker is just admirable. He charges very reasonably for it; you have imitated, so I think, in a poor way. Now while you have the best extractor, I know, I am frank to say that, I would rather pay three times as much for the Bingham smoker as for yours. Your cheaper plan is no advantage, and if bee-keepers knew the real Bingham smoker, you would have, I believe, to take back a good many of yours, as per your promise.

Mr. B. has spent much thought and labor on his smoker, and I am sure every bee-keeper will say his charges reasonable. Now he has no paper to aid him to sell his wares, no chance to receive fair compensation except we stand by him. I believe you will agree with me, as you think of the matter, that we should not only sustain Mr. B., but that if he is to be treated as was Mr. Langstroth, we should, for him, for the public, and for justice frown upon such theft.

I hope the matter may not suffer litigation. If such a course is taken I think bee-keepers generally ought to be the defendants.

I hope you will teach all to honor patents. This is keeping the law. "Render to Cæsar, &c." Teach all to be wary how they buy. Never buy except they know the article has value and is needed. But reason dictates that we should never ignore a thing, simply because it is covered by letters patent. I believe the words of the Book which we both revere will be no uncertain guide, if we catch its spirit while interpreting its words.

I write this only from a sincere desire that right, aye, and righteousness should prevail.

Lansing, Mich. A. J. COOK.

I *cannot* think it my duty, friend Cook, to encourage patenting such slight changes, in the invention of another. A patent was granted it is true; but according to the *A. B. J.*, at least *three* patents to as many different persons, covering the same points, have been granted on the section honey boxes; does the *A. B. J.* respect such patents?

I am selling a great many Bingham smokers and they are giving good satisfaction, and as Mr. B has no paper in which to advertise, I will give him ½ a column for one year free, and he may advertise in it as he chooses. If his smoker is the best, the people will be sure to find it out. If I am continually puffing my own wares for the purpose of gain, the people will be sure to find me out. May God bless you all, in any event, and help me to better deserve the kind words you have given me all along.

OUR friend Snell, of Milledgeville, Ill., also sends out a neat circular of hives, &c. That is right, let the people have nice work, at many different points, that the expensive shipping may be avoided.

FRIEND DADANT has come to the front, and offers imported queens for $4.00. With his large experience in the matter, he can probably do this as well, or better than anybody else; but friend D., I am afraid those who happen to get the very dark colored queens, will complain even at that price.

TIN for separators and extractors. As we buy in large quantities, I can perhaps give you better rates than you are getting at home. Price per box of 112 sheets, size 14x20, $6.50; price per sheet, for less than a box, 7c. 1X tin for making extractors, 14x20, per box, $9.50; price per sheet, 10c. We will ship it from Medina, or from Philadelphia, as may be most convenient.

Multum In Parvo. To-day is the first of March—We have 2697 subscribers The bees are working beautifully on oats and corn ground together, and grape sugar—To feed grape sugar, fill a large wooden pail, or even tub, with thin syrup, and place some bits of dry shingles on the surface of the liquid. Tip the pail until the syrup just begins to run over one side, and as they lower it, tip it more; they will soon take a pailful—Chaff hives have all wintered beautifully again; no dead bees at the entrance, but very little stores consumed and no "tending" needed until the section boxes are to go on.

A NEW ruling of the P. O. department is that knives and scissors, as well as queen bees, are unmailable. But our P. M. says if they are encased in a solid block of wood, so that it is impossible for them to do any injury to the mail matter, we have complied with the spirit of the law, if not the letter, and that goods thus put up may be mailed until there are positive orders to the contrary. That there is abundant need of strict regulations in this respect, I am well aware, for we often have sticky packages of honey, sent us by mail. I would never think of sending honey by mail, unless soldered up tight, in a strong box, or encased in a block of wood. Use candy for queens, and never honey, and there will be no trouble.

MY friends, you are certainly doing the R. R. and Express Co's, a wrong, in one respect at least. It has been our habit, to submit all complaints of overcharges, &c., directly to them, as fast as received; and in no case, have they failed to hunt up the whole matter, and give bills of each separate charge. A few days ago, a customer wrote he had been swindled, by an express charge of $3. or $4.00. After a laborious tracing on the part of the Co., as it was quite a distance, a whole bundle of papers came, showing that he had paid less than half the amount. The whole were mailed him for an explanation; his answer was, that a neighbor got the goods, and told told him of the excessive charge for a joke. The charges are, almost invariably, found correct, or at their usual rates, but the difficulty seems to be in passing over so many lines, to out of the way places. We have sent tracers, many times, when the party had not called for the goods, but only sent by a neighbor, and the goods were on hand all the time. Please be sure the cause of delay is not all your own fault, before you trouble over-worked employes of these great corporations; and when there *is* error, or even the appearance of fraud, state the case plainly, but gently.

AN APOLOGY.

IT has been said that editors never make apologies. Perhaps I am not an editor; if being one would prevent me from frankly owning up when I know I have done wrong, I sincerely hope I may never be one. When I wrote the article last month entitled "Trouble," I honestly thought it would do good. Perhaps it has done good in the way I intended it should, but I am sorry I did not leave it out, as I came very near doing, several times. I was looking for an illustration to show how foolishly people acted, when quarreling. I thought I had found an excellent one, and in my zeal to make my illustration a strong one, I had so little mercy on the feelings of my friends, I am afraid they will never forgive me at all. I had no unkind feelings toward them, for they simply acted just as we all do, when we get into a strife. I thought they would see it as we do, and let it drop, forgiven and forgotten. I thought, too, I should have a letter with both their names signed to it, for this issue. I did get a letter from each of them. There is certainly no doubt in my mind in regard to that part of it. But their letters agreed in so few points, I really *cannot* publish them. If they will both sign their names to the paper, they may have all the space they choose, even if I have to enlarge GLEANINGS; and they may say all they wish about my poor self too, but I do not wish them to blame eadh other any more. In three points they agree exactly. Both say they have not quarreled; both say that the card on the Doolittle hive was not changed, only a printed one put beside the other by Mr. B.; and both assure me that the competitors did not pay any $7.00, as I stated it, but that Messrs Thurber & Co., paid *all* expenses. I humbly beg pardon of the above gentlemen, and offer as an explanation, that the circular they sent me reads: "One fee ($7,00) only will be charged." In my usual blundering way, I got this mixed up with the $50.00 medal. I am sorry, but after all, I am afraid I do not feel as badly about it as I did when I offered to pay my hotel bill to 'the man who hitched up my horses.

I did not intend to question friend Doolittle's right to the medal, but I wished him to state fully the whole circumstances. The judges have since reviewed their decision and have re-awarded the medal to friend D.

Heads of Grain,

From Different Fields.

WINTERING BEES.

OUR winters are as variable as our other seasons, and it is this variableness that we, as bee-keepers, ought to guard against.

We notice warnings in our Bee Journals "to look to the bees kept in cellars"—"that they are getting uneasy"—"that there have been some losses"—"that they should be taken out," and so on, &c. Now, allow us to say, if such is the case, it need never to have existed at all if the repositories had been put in proper condition. Every one knows that a bee cellar should be dry and dark as possible, but there are other conditions just as important; *the cellar should be fortified and protected in every way and manner possible against cold and heat, alike.* What will be successful in shutting out the cold, will also be successful in shutting out the outside heat. In our opinion there is *more* danger in the change from cold to warm than in the reverse. When these changes in the weather come, the effect in a good cellar, is so gradual that the bees do not notice it, and consequently keep quiet. The bees in our own cellar have never been so quiet a winter before, warm as it has been. I have been for some years improving my cellar to bring about just such a condition of things as above recommended. And now let me say here in closing this part of the subject, *it is just as important that our cellars should be well protected in a winter like this, as in any of the cold severe ones past.*

Which is the better way to winter our bees—out of doors or in cellars—I do not wish to discuss at this time. Those wintering in good cellars, I presume will find a good many dead bees on their floors. We account for it in part this way; it has been warm this winter and consequently there has been more breeding in the hives than usual; the old bees were disturbed—came out and died. Some of those wintering out of doors, tell us that they have no dead bees, to speak of. The reason no doubt is, the bees carry off all that drop on the bottom of the hive, while the old ones fly away and never come back again.

Those of us who are wintering our bees in good cellars, "let us possess our souls in patience"—let us not be in a hurry to get out our bees; although our out-door wintering bee friends have had the pleasure of seeing their pets fly almost every week this winter, it has been at the expense of their precious stores; the more flying, the more honey used up; while ours will have their stores intact, and "where it will do the most good" for future breeding.

R. H. MELLEN.

Amboy, Ills., Feb. 9th, 1878.

GRAPE SUGAR.

In Dec. No., page 318, Mr. D. C. Underhill says, that he had made a syrup of about 5 lbs. of grape sugar "and one of water." Is this not a "big mistake?" What manufactory makes grape sugar that can be dissolved in 1-5 of water? Please explain it.

DR. WM. LEERS.

Sigel, Ills., Feb. 13th, 1878.

No mistake at all, friend L. Grape sugar is queer stuff, and you can make a syrup of it without any water at all, if you warm it up a little. It solidifies something as does bees wax. When it gets about so cold, it gets solid "all of a sudden." This is owing to the large amount of water of crystalization it contains. It does not make syrup, as does cane sugar, but seems to change from sweetened water, as it were, to solid sugar, almost at once.

Something has been said in the papers, of grape sugar being unwholesome. I would think some of the samples I have received were so, for it was almost sickening to try to eat them, especially that received from N. Y.; but the light yellow sugar that we have been using, I find almost as pleasant as maple sugar, and I have eaten it freely for months past. The following from the manufacturers may give some light in the matter:

In regard to the prejudice of some people, as mentioned in your letter, I would say that it is totally unfounded. There used to be made some very poor grape sugar which contained considerable sulphuric acid, which may have been unwholesome in cases where large quantities of the sugar were consumed. Farther, the sugar was badly refined or totally crude, in which state it had a bad taste and disgusting appearance. Bees will not take a sugar which contains the slightest trace of sulphuric acid, and this is the main reason why we manufacture an article expressly for this purpose. I consider it really wholesome and in case of light cold, give it my child as a remedy.

LOUIS. P. BEST, SUP'T.

Davenport, Iowa, Feb. 9th, 1878.

APIS DORSATA.

On page 40, Feb. No. of *A. B. J.* you will find a notice begining "The Dutch government &c." I lately received a letter from Mr. Gravenhorst in which he stated that Mr. Rykens sailed by steamer from Holland, early in Oct. arriving in Java by way of the Suez canal, in 7 weeks. He took with him bees from Austria, also Cyprians, and Italians. Rykens says *apis dorsata* is of no value for domestication, as it propagates slowly and builds its cells after the manner of wasps, the wax being inferior and but little of it. Honey also inferior and in small quantity, so it appears to have no desirable qualities for the apiarian. Later we will hear of Mr. Rykens success. Mr. Gravenhorst can furnish Cyprian queens in August at $10 each.

No losses thus far. One colony queenless, I will have to feed soon owing to active breeding and the mild winter.

EHRICH PARMELY.

New York City, Feb. 11th, 1878.

And thus ends, I fear, our cherished hopes, of "*apis dorsata.*" Thanks friend P., for your frank statement of the overthrow of your hobby. I fear we shall have to breed up large bees on friend Hunter's plan, after all.

NICE SECTIONS.

I was about to write to you to see if you could not get up something more perfect than those you sent me last year. I want to say one word about sawing the dovetail of the sections. The saws should run against the planed side of the sections. Take up a sawed section and you will observe a slight projection, made by the saw; these projections should all come on the inside of the sections. Among those you sent me last year, some were sawed right, but most of them had a projection on both sides. To make this smooth was some work, which can be avoided by having the gang of saws run against the planed surfaces at each end.

I lost about 3c. per lb. on some of my honey last year by having it imperfectly put up. I think you are on the right track. What we want is a neat section, planed on one side and both edges, with the top and bottom pieces enough narrower for the glass to come very nearly flush with the wide part and yet be free, so that in packing, the sections can be pressed together without endangering the glass, if the market demands glass.

L. C. WHITING.

East Saginaw, Mich., Feb. 4th, 1878.

I omitted to say in my description, that we have the grooving all done in such a way as to throw the burrs on the inside of the box.

IMPORTING QUEENS.

What right has any officer of the custom house to keep a package and send word, in place of the package, that "all the bees are dead?" My second invoice of queens. I never saw, but received a dispatch stating that all the bees were dead. With the third invoice, the same trick was tried, but I ordered the package to be sent anyhow, and I found two queens alive.

PAUL L. VIALLON.

Bayou Goula, La., Jan. 3d, 1878.

DANDELIONS.

I notice in the A B C that you assign to the dandelion no use except for honey and greens. I must inform you that the roots, if dug, washed, cut into small pieces, dried and browned, make the most delicious coffee obtainable; far ahead of Java or any substitute for coffee that I have ever seen. If sown after the seed fall in the spring, in a rich bed in the garden, you will have fine roots the spring following. Try it, and please inform your readers. We find the honey from dandelion darkish yellow, and rather strong but not unpleasant. A. A. LEWIS.

North Duxbury, Vt., Jan. 10th, 1878.

EARLY QUEENS.

Since looking over GLEANINGS I have been thinking about your suggestion concerning rearing early $1.00 queens down south. Our springs are early. We sometimes have swarms the first of April. The first colony of Italians I purchased, three years ago, swarmed April 6th. Think I could furnish a few queens by May 1st. I have a few fine home-bred queens, but shall want an imported one if you think I could sell enough queens to pay for her. There is but little interference here from black bees. Please let me know what you think of it.

JNO. W. BEATY.

Decatur, Ga., Feb. 15th, 1878.

I think all the queens that our Southern friends can raise, can be sold readily for $1.50 each, in the month of May. As I shall sell them for this price, I cannot offer over $1.00. If you think this is too much margin, you can buy directly of the producers. With the great amount of business now on my hands, I would prefer to have you do so. yet if I can in any way "go between" purchasers and producers, and get you better acquainted, I shall be glad to do so. Much hard feeling has been engendered by advertising queens and receiving money, and then being unable to fill orders. I would recommend new hands at the business, not to advertise until they have queens on hand, and then they are on the safe side. The business is beginning to assume considerable magnitude. and I am rejoiced to see our young friends build up a business and prosper. Look out for Blasted Hopes, and work carefully.

In regard to imported queens: every customer wants one of the finest; in fact, I cannot remember a single order, for a $5.00 one. Now there are but a few of the finest; what shall I do with the rest? I do not know unless I raise the price of the best ones. The greater part of them, are pretty dark, and these you will not be pleased with; what shall I do with them?

FROM FRIEND DOOLITTLE.

We intended, at the beginning of the present year, to write an article each month for all three of the Bee Journals of the United States, and also to answer all correspondence, but find ourselves unable to do so, on account of a severe attack of rheumatism. Our correspondence has grown so large as to occupy from 2 to 3 hours of our time every day, and although it is a pleasure to us to answer all questions pertaining to bee matters, yet our time and health will not permit us to do so. We shall therefore have to say good-bye, to our much loved Journals and correspondence, for the present.

G. M. DOOLITTLE.

Borodino, N. Y., Feb. 19th, 1878.

I can readily appreciate your difficulty friend D., and although we can not blame you, we trust you may give at least a brief report to some of the Journals, now and then. I have been told that Capt. Hetherington, some time ago, came to a similar conclusion, and that he now does not even answer letters at all, nor send reports for publication. It is something like this, my friends. Suppose you were to go into one of our large city stores, and ask to see the proprietor; should you find him kind enough to drop his business, to attend to you, suppose you were to tell him you would like to talk over the dry goods business, with a view of embarking in it. You, an utter stranger, wish him to tell how much money he makes, &c. Perhaps I have stated the matter pretty strongly, but there is much truth in the illustration. We all tender thanks, friend D., for the much you have done for us, and wish you and your bees, as good a summer as your last one.

DOUBLING UP IN THE SPRING.

Can two swarms be united in the spring and the spare queen be saved by forming a neuclus? and how? J.C. DICKINSON.

Hudson, Mich. Feb. 4th, 1878.

There is no difficulty at all, in doing as you say, but what is gained by such a course? Which is of most value; two fair colonies, or one very strong and one very weak one? I think I would prefer the former. If you wish to make a great report from a certain number of colonies, you can do it, without a doubt, by doubling up your stocks in the spring, and making nuclei to save the extra queens. Reports from apiaries managed in this way, have been given in our back volumes. The honey yield is usually immense, if swarming can be prevented, because the stocks are all very strong when the harvest opens.

MUTH'S CASE OF SECTION BOXES.

Of course he has one and it has some rather nice points about it too, but the stuff is unplaned, he uses no separators, and has no groove for the fdn. If I am correct, the sections are lifted from the hive all at once, just as they are built, into the shipping case. We can do this without trouble, if we omit the separators, and wait until all are filled, before we lift them off. In this case, the honey is all stored on the top of the frames, and none at the sides. I wrote him my objections, and below he replies. Friend Muth is excellent authority.

I can raise straight combs in these sections of ours without separators, and Hill's lot of 4000 lbs. of comb honey in such sections (in '76) proves that he can do it. No evener lot or straighter combs could be produced. But I should try these separators were I raising much comb honey. I had slats in the top bars of my small frames, but quit them, because fdn. can be fastened just as easily without them.

I consider your sections rather small, because I can just as readily sell 2 lbs. of honey in a frame as 1 lb.; and as the finishing part occupies the bees, apparently, the most time, I believe also that we can raise more honey in larger frames. Your shipping cases are neat, but they cost more than they ought to, and they should be stronger for the general business. Shipping cases are, generally, used only once. With my cases you will notice that about ½c per lb. more for the honey, pays for the cases and sectional boxes. Please give us your criticism without fear or favor. CHAS. F. MUTH.

Cincinnati, Ohio, Feb. 20th, 1878.

Please to inform me from what the paraffine with which you wax your barrels, is made. Some say it is made from lard after the oil is pressed from it, and others that it is made from coal oil. I can not get the refined paraffine in New Orleans for less than 36 and 45c in large quantities.

The saw files, such as you give an illustration of in Feb. No., I consider the best made files for a circular rip saw that I have ever seen. The half round files put too thin a point on the tooth; they will not stand our cypress lumber. F. F. FELL.

Allen P. O., La., Feb. 9th, 1878.

Paraffine is made from the products of the oil refinery, and if properly refined, has neither taste nor smell. That which we offer for sale, was purchased at ton rates when we contemplated using it for fdn. It is now worth more than we *have been* selling it for. While I think of it, I paid the money that was sent us for paraffine and wax fdn. all back, yet it is well worth 25c for waxing barrels. And while considering the subject, it may be well to remark that Capt. Hetherington uses this same condemned paraffine and wax for his brood combs, the copper wires effectually preventing the sagging. As the paraffine is much softer than wax when warmed gently, he says the bees work it out much faster than natural wax, which I can readily believe from my experiments.

I can, now, buy square gums, about 2 feet long by 12 inches square outside, with bees and honey, for $3.00 to $4.00. State in your Journal the best way to manage such gums, and how to keep the worms out. Sometimes a man will lose 10 to 30 of such gums of bees in one season. D. J. SANDERS.
Harmony Grove, Ga., Feb. 4th, 1878.

Your concluding sentence would indicate pretty strongly the importance of getting your bees *out* of the "gums," as speedily as possible. I should buy them at that low price, and transfer them. Before you can Italianize them, or do anything with them to any advantage, they must be transferred into movable comb hives.

HOW TO MAKE CHAFF HIVES CHEAPLY, ALSO "OATS" FOR BEES.

I wish you could see some two story chaff hives that I have made, for which I have had to purchase only the nails. Nearly all the lumber in them is "rived" oak boards, about 60 of which, together with a few feet of good lumber will make a hive and roof, the value of materials not exceeding 75 cts. For "chaff cushion division boards" I use some of the same made thin, with laths for a frame. I use Southern or Spanish moss (from an old matress) to stuff the cushion around the sides; I "know" I have some good ones. You said a man could start an apiary with very little besides an axe (not *quite* your exact words): I have almost done it, and intend making it pay its own way.

Early in Jan. I had no rye meal, but as my bees were flying pretty freely I put out a pan of cow feed, equal quantities of corn and oats ground. From one hive the bees used it freely. Next mill day I had the rye which I had saved, ground and placed by the corn and oats; they would use it but sparingly. I changed the position of the two pans and the bees followed the corn and oats wherever it was placed. Never having seen oats recommended I pounded some alone in an iron mortar, and renewed the experiment with corn, oat and rye meal, and wheat flour in four different pans; the oat pan had ten bees in it where the others had one.
A. W. KAYE.
Pewee Valley, Ky., Feb. 14th, 1878.

Rye and oats, have long been recommended and used, as you will see by back volumes, but it seems you have demonstrated that the bees greatly prefer the oats.

CHAFF HIVES ; THE $25.00 OFFER.

Novice, do you not put *your* "foot in it" when you preach to them for offering premiums on the best honey, and then offer a premium yourself for the best chaff hive, instead of asking your readers to send in their views of different hives? J. DREW.
Bunker Hill, Ill., Feb. 1st, 1878.

I fear you are right my friend, especially, since the flood of plans that have been sent in, showing so much labor both in inventing, and writing descriptions. I have been astonished at the inventive genius of our people, and many of the plans are beautifully sketched. I only wish, my friends, I had started you at work on some worthier object. All the plans submitted, so far, have objections that I think worse than the one they have sought to remedy, and I feel sorry to tell you that I think the chaff hive, as we make it, the least trouble of all, because I know some of you think my judgment at at fault in the matter. One or two have been displeased when I told them the objections to their plans, and one man has written quite unkindly, because I would not give him the $25.00. A great many have not complied with the conditions, and several have sent plans for removable upper stories; others have introduced loose boards, and still others, a great variety of side openers.

Bear in mind that you have to take out 3 or 4 frames anyway, and after this, it is about as easy to take out the remaining ones, as to fuss with any loose device, or extra piece of furniture. A friend from California, sends us a very pretty little model, filled with native raisins and figs. His long kind letter is almost worth the money, even though I can not approve of his chaff hive.

Many of the plans I had thought of and discarded some time ago. Many had overlooked the matter of propolis, altogether. Several have come so near it, that but a very small thing stands in the way, but this small simple item, I judge to be fatal to the whole.

Please do not think unkindly, my friends, for I stated plainly, the conditions, that I must think well enough of the plan to *adopt* it. Whatever I adopt, you will all know through GLEANINGS, for I have no secrets in the world to be kept from you. One very desirable feature of the chaff hive as it is, is that we have a shoulder beyond the ends of the lower frames; that is, the upper story, is longer than the lower ones, and this is quite convenient in handling the lower ones. I am somewhat inclined to think it impossible to have a permanent two-story hive, more convenient than this, all things considered. I regret that I can not pay you all, for your kind efforts in the matter.

I am glad some one has "gumption" enough to get material in good shape for section boxes, or racks, cut to a fraction and planed only on one side.
J. W. BAYARD.
Athens, Ohio, Feb. 4th, 1878.

I commenced bee-keeping one year ago the 27th of Aug.; I found a swarm on a little cherry tree in my yard, which had hung there all night. I procured a hive and some comb and by feeding, kept them over winter. In the fall I bought 2 more and increased the 3 last summer, to 15. I made most of the swarms, although I had never seen it done, but had read of it. I had no trouble whatever.
MARK HURD, Chicago, Ill.

KELLEY'S ISLAND.

Have made some inquiries, but can not learn of anything being done, or application being made to raise queen bees here the coming season. If I do, I will post you. CHAS. CARPENTER.
Kelley's Island, O., Feb. 14th, 1878.

Bees have been having a "big time" the past week; carrying flour from around the ventilator on top of the grist mill, some 20 rods away. It is the first time I ever knew them to do so in December.
JAMES BOLIN.
West Lodi, Ohio, Dec. 26th, 1877.

HOW BEES "EVAPORATE" THE WATER, FROM THIN HONEY.

One morning in the month of Sept. as I was standing about ten rods from my apiary, looking partly toward the sun, I noticed that most of the bees on their first flight in the morning (to a piece of buckwheat) exuded a watery substance from their bodies. What was it? Was it caused by the rapid accumulation of excrement in the working season, or was it water obtained from the honey in the ripening process? Although it may not be of practical importance for us to know, yet it would add one more link to our knowledge of the insect. My bees have been bringing in pollen from dandelion for the last four days, and are apparently breeding considerably. F.C. WHITE.

Euclid, Ohio, Dec. 28th. 1877.

I feel assured it was the water they had by some means (doubtless well known to themselves) separated from the thin newly gathered honey, in the process of ripening. On page 125, vol. 2, you will find an account of some experiments in the matter, while flying bees in the green house.

SIMPLICITY FEEDERS.

Make your wooden feeders hot, pour melted paraffine into one, put another top of it, face to face, shake them until inside is coated—*very nice*. I made tops of frames same way 4 years ago—good feeders but clumsy frames. J. M. SHUCK.

Des Moines, Iowa, Jan. 11th, 1878.

EQUALIZING STOCKS IN FEBRUARY.

On going down cellar to look at my bees to-day, imagine my surprise at finding bees hanging out over the entrances of some hives in bunches from a handful to two quarts, like a warm July afternoon. I thought it would be a good time to divide and equalize. Taking a two quart dipper, I dipped them off and poured them into the top of the hives of some weaker stocks; what do you think of the operation? My bees are mostly in Langstroth Simplicity hives, with chaff at the sides and on top. If the cellar were not dark they might swarm. I wouldn't be surprised if, on looking, I should find queen cells started. Chaff if rightly used is the greatest bee medicine known.

Last season was not a very extra one here; we had so much rain. One day, in particular, it rained very hard 6 hours without stopping. I had to go out three times and drag my hives up hill out of the water.

As it was, they averaged about 75 lbs. each. Some sneak thieves stole 70 lbs. in frames one night; poor fellows, if it will do them any good I'll let them have it. "Father forgive them, they know not what they do." RICHARD HYDE.

Alderly, Wis., Feb. 4th, 1878.

I have never tried mixing them, but I had bees cluster out of two hives when placed on a shelf in the bee house, and cluster together. In the spring one was queenless, and several weeks after, I found two queens going along peaceably in the other hive. They may unite without trouble under such circumstances, but one of the queens is very likely to be "balled" and frequently, killed.

WINTERING FIVE STOCKS IN ONE HIVE.

I commenced last spring with 11 colonies of blacks and hybrids, and one colony from Dadant with imported mother. I transferred all combs, putting them into a uniform frame. I extracted 1100 lbs, took 100 lbs. comb honey in sections, and increased to 30 stocks, raised and introduced 28 young queens from imported mothers, and sold 6 to my neighbors.

I had 22 swarms out for a fly (wintering in cellar) on the 5th and found them in excellent condition. Found a good many dead bees on the bottom boards, but lots of eggs, larvæ and sealed brood.

I must tell you how I undertook to winter 5 swarms in one hive. In Nov. I made a "long idea" hive and put a good swarm in one end of it on 5 combs (my frames are 10x15 inside measurement) then put in a division board fitting "bee tight" (said division board had a *very* large hole cut through it, and wire cloth tacked over it to prevent the bees from passing through), then another swarm placed in and so on, until the 5 were in one box. All were then covered over with blankets folded up, and over all, were laid wide boards. On examining them on the 5th. I found that my "hive" had "sprung," and let all the frames drop off the rabbets and onto the bottom of the hive leaving a fine passage every way for the bees at each upper corner of the division boards. To my surprise, I found every queen alive, and brood in all stages in every apartment. Fearing to trust them until spring in that condition I removed them to separate hives. Now Novice, cannot we winter neuclus colonies on this plan? I shall try it next winter. T. T. DELZELL.

Hersey, Mich. Feb. 11th, 1878.

You can winter colonies in that way, and perhaps nuclei also; but it is a great deal of trouble, as you have experienced, to put them all into one such hive; and then it is a great deal of trouble to get them out into some other kind of a hive when it comes spring, besides the risk of losing the queens.

I am glad to see you progressing some. Some time ago, you recommended sugar alone for feed; now you add flour which I know to be an improvement. I have used starch for 20 years.

I was troubled for some time by something disturbing my hive at night; moving the blocks at the entrance, and the sawdust and coal ashes, that I use instead of sawdust. I set a trap at last and caught a skunk, and have not been troubled since. Do skunks eat bees?

Would it answer to extract till the harvest begins to fail, then feed back, for box honey?

Would a little propolis injure wax?

J. WINFIELD. Hubbard, Ohio, Dec. 2nd, 1877.

You have, yourself, given us excellent evidence that skunks do eat bees, and other reports agree with your statement. If you can buy extracted honey for 10c, and sell your comb honey for 15, it will pay to feed it, but I think it will pay better, to have the honey stored in the section boxes at first, rather than take the trouble to extract and feed back again.

Propolis does no harm, for it is readily separated from the wax by melting, or with the wax extractor.

I am a victim of "blasted"—"carelessness" in one respect, and "hopes" in another. The Jan. No. of GLEANINGS came to hand all right, but I lost it on the road home before I had opened it. That is wherein I am a victim of carelessness. Pray don't draw any bad inferences, I belong to the Murphys. My "*hope*" that was "blasted" was this: I built up a swarm last summer from about a pint of bees; they became quite strong, and I set them apart for the minister, intending to give it and all its proceeds and increase to the support of the minister (*extra*), in the future. Well, they filled nine frames (Prof. Cook's style of frame) and I was overjoyed at the prospect; but, alas! one day, late in the fall, I noticed an unusual activity about two of my hives, too much so I thought for "honest bees." On looking into matters I found the two had overpowered the hive in question, and had taken, not only most of the honey, but all the bees but about a teacupful, and they principally drones. I put a stop to their operations, and in a day or two afterward a rather weak swarm of Italians found there was something there that they would like, so I let them take the remainder. Don't accuse me of carelessness in this, for I had been out to that hive two days before and saw nothing wrong; they did it up in a hurry.

I have 6 left; they are doing well so far. The winter has been very warm, bees flying in all directions for a week at a time. My three Italian swarms are out about an hour earlier than the blacks, every day that they fly. B. ROBISON.

Schell City, Mo., Feb. 2d, 1878.

I am afraid my friend, that if your minister should see this, he would reprove you for using the term "blasted", as you have done, and myself for publishing it, but as it would spoil your story to leave it out, and as we neither of us mean any harm by it, (as the boy said of his dog when he bit folks) I hope we are excusable. I think it a grand idea, to make your minister a present of a bee-hive. The hive we gave our minister made so much honey that he gave some to the rest of the clergy in our town, and thus encouraged a union sentiment among them. It is true he did get stung one day so as to be kept from meeting, but I never mention that part of his experience.

STILL LATER, ON THE $25.00 OFFER.

I am getting hives ready for another campaign. As I saw an article in GLEANINGS, "How not to make them" (chaff hives), I thought I would tell you how I have mine made, thinking I might perhaps learn how they *ought* to be done. The front and rear of the hive are double, with a three inch space between, for chaff. The upper story is permanent, and of the same width as the lower. The frames of both stories are interchangeable, and all run from front to rear of hive. The frames of the lower story hang on a rabbet or groove in the side of the hive, one inch wide, and ½ inch deep. The metal rabbet may be used without making an objectionable projection. The upper frames hang on a rabbet of the same depth, and the hive is long enough to admit of chaff cushions at the ends.

The cushions may be moved back to make room to turn the frames diagonally to take them out, and when it is desirable to *fill* the lower story with frames, a few may be removed by means of a vertical groove in the sides of the upper story two inches wide and ½ inch deep, near one or both the ends, and opposite each other.

The vacancy in the upper rabbet caused by the groove, is filled by a piece of wood of the right size. This may rest on the frames below or hang on the rabbet above, and to keep the bees from fastening this block it is covered by a piece of tin, cut in such a way as to protect the exposed parts.

If a hive can not be made two stories so as to have the frames interchangeable, to be used to build up other stocks or to prepare them for winter, &c., I do not see that they are of any especial advantage, when we can have our surplus honey stored in section boxes, which are nicer to sell, as well as to keep.

Milton, Pa. WM. G. FOLLMER.

The above comes nearest to solving the problem of any yet recived, but I would not want the vertical groove, nor the loose stick covered with tin; it would always be getting lost, if our boys had it, and they would push the frames along and let them fall down that groove. The cushions, *perhaps*, may be made to answer. They must not be made to lift out, for the bees would run over into their places, and then how would you get them out again? If there is a recess back of the cushion, a heavy colony would get over into it, and you would waste time in getting them out. If the cushion would shut up like a pair of bellows—there! I will tell you; we shall have to tack a piece of the enameled cloth to the top of the chaff cushion, and then to the side of the hive. This will allow the division board to move back and forth, and still prevent bees from ever getting back of it. But how about the ends of this strip of cloth? Candidly, I don't know.

Since the above was written, I have given it some thought, and fear that propolis will spoil the working of all such machinery, in spite of us. Enameled cloth is the most secure from it, of anything I have seen.

I have just been examining a double-story hive with the frames all the same size and running the same way, in both stories, with lower frames removable by taking but a part of the upper frames out. It is accomplished by means of pins with a hollow underside of the projection of the top bar, and no rabbet in the hive. The top bar is ⅛in. short at each end, and the pins are ⅜ in diamater by 1½ between centres. The ends of the top bar are only ½in. wide.

Mt. Zion, Ills. J. S. HUGHES.

Many such plans have been submitted. One objection is that the frames are at fixed distances from each other; when combs vary in thickness, even slightly, it is a serious objection. The other is, that if one side of the comb is heavier than the other, which is often the case, the comb will swing over against its neighbor. Nails or staples at the bottom have long been considered objectionable.

I have about 300 lbs. of honey in sections, for sale. We can get but about 12c here. If you can tell me where I can dispose of it to better advantage, you will confer a favor. Most of our honey in this section is unsold yet; it is principally fall honey.

G. G. LARGE.

Millersville, Ills. Feb. 23rd '78.

We were so unfortunate as to lose one of our best stocks during the heavy snow storm. They smothered. They had sealed the cover tight, and the snow melted, afterward freezing and closing them up air tight. Such is bee-keeping! J. W. BARCLAY.

South Oil City. Pa. Feb. 22nd '78.

I do not believe such a thing could happen, either to the Chaff or Simplicity hives, and I am inclined to think you mistaken as to the cause. I always feel safe about the bees, when under a deep snow.

I have two swarms of bees in my cellar. Last week I transferred one, and yesterday the other, into movable comb hives, one similar to the American. Both swarms take to their new homes very contentedly. Both had brood in all stages. The work was done in a warm room. E. M. BALDWIN.

Saratoga Spings, N. Y. Feb. 12th 1878.

DRONE LAYER AND FERTILE QUEEN, BOTH IN ONE HIVE.

As Mr. Vosberg and myself were once examining his bees, we each found a queen on adjoining frames. Upon looking closely we discovered the brood had a strange appearance; there were a few cells of worker brood with sealed and unsealed drone brood scattered through each comb, and drones and young workers hatching, all from worker cells. such funny little drones! One queen was large and the other quite small; of course one was a drone layer. Both were in the hive long enough to hatch brood. There was but little honey. Now, Mr. Novice, if bees manage their own business so well, why did they leave the drone brood and drone laying queen unmolested? Why did not the queens battle?

One word in regard to extracted honey. Why are you looking for a method to keep it from candying? Why, take some warm biscuit and candied honey; "nuff ced." I don't want anything better. Educate the people to eat candied honey and see what will become of grape sugar. J. J. SWARTWOUT.

Union City, Mich., Feb. 6th, 1878.

The small queen was the mother of the other, and the drone layer. She had passed her useful days, and was tolerated, as they usually are, mother and daughter, together. I presume they depended on the queen to furnish the brood, and as she laid the eggs in worker cells, they thought they must be all right.

I like candied honey with my hot biscuit, too, but unfortunately, but few others do. After a jar of honey has become candied solid, it is always rather slow sale. I also like grape sugar, on hot biscuit, and I am not a bit frightened about its being unwholesome when it is as nice and pure as that made by the Davenport Co.

My small bee business does well. Eight stocks last spring and a starved swarm that came to me in April or May, produced 65 lbs. of beautiful thick honey and twelve swarms; making in all 20 stocks in good condition. JOHN FOTHERINGHAM.
St. Mary's Ont. Canada.

EIGHT FRAME HIVES, AND "TANGING" BEES.

I think you will soon talk 8 frame Langstroth, for the brood chamber.

Here is a chance to make that fortune in a combined smoker and tanger. One day, last summer, as I was crossing the road with my Quinby in hand, I was accosted by an old "fogy" friend, who claims to have kept the "varmints," ever since the time when Michigan wore her "baby clothes."

"How's your bees getting on lately?" said he.

"O they keep me quite busy," I said. "You see, there is one swarm in that little 'cedar,' and another in that cherry, and I have just been raking one out of those blackberry bushes."

"Wal! that's a big 'skip' hanging up there," said he, "but what on airth is that, machine you've got there?"

"That is a 'Quinby Smoker,' sir," and I pinched the bellows, while the pipe was quite close to the old man's nose.

"Lawks!" said he, "I thought it was some new fangled patent right, to 'tang' 'em down with when they swarm."

What they call "tanging," blowing horns, ringing bells, &c., is practiced by those who have their "bee education" handed down from one generation to another, and, who ridicule practical books upon any subject. It is amusing to hear the superstitious stories they will tell about their bees.

ALONZO BORDEN.
South Lyon, Mich., Jan. 24th, '78.

I am already converted to 8 frames for the brood nest, or perhaps 7; but I would want my hives wide enough to contain a frame of sections at each side of the brood, and this would bring it just as we now make them. For wintering, we want just 7 combs or less; we therefore replace the frames of sections with chaff cushion division boards, until honey comes again the next season. It is, many times, very convenient to have 10 brood frames in a single story, and for this reason, and the others mentioned, I would not make hives to hold less than 10 frames.

My bees came through all right last winter, altho' we had a hard spring; many lost heavily. Mr. Augustine lost 20, out of 24 swarms; he wintered on summer stands; I wintered in house apiary, and increased by natural swarming, 300 per cent. I took 442½ lbs. of honey from 4 swarms, comb and extracted. From one, I took 60 lbs. comb honey, and 84 lbs. extracted, and it cast 4 swarms; all are doing well to date; they had no assistance from other hives. I had 3 swarms, that showed signs of dysentery, after being confined two weeks in their hives; this was on the 14th of November; two of them appear all right now; from the other one, the bees come out with their bodies very much distended; of course, I do not expect them to survive the winter. All the rest are "slick and slim" to date.

Oh, See! what a height friend Novice has reached with his climbers, on the ladder. Now, Mr. N. when you get up to 4 or 5 thousand steps--say, won't we subscribers look very small down here? eh?

M. RICHARDSON.
Port Colborne, Canada, Jan. 15th, 1878.

Four swarms, and 144 lbs. honey, nearly half comb. is certainly pretty well, and I guess we shall have to admit that your locality is good enough for anybody. Was that colony chaff packed. or in the house apiary?

Friend R., whenever subscribers or any cause else, makes me forget that I am one of you, I hope the "ladder," and the "climbers" too, will be taken away from me until I come to my senses again. I always want to be a bee-keeper, and when it is my turn to go into blasted hopes I want to be a "blasted hoper" too.

I wrote you last summer, enquiring the best time to transfer bees from an old box hive to one of movable frames. I am sorry I wrote anything about it, for I have none to transfer. Some scamp carried off bees and hive, leaving me only the bottom board; that is my first "Blasted Hope."

E. B. BLACKMAN, Hudson, O. Feb. 2d, 1878

Truly my friend, your prospects are not of the most encouraging nature; nothing but a "bottom board." We all tender our sympathy, I am sure, and if you lived near by, I do not know but we might tender something a little more substantial; but then, you have the "first principles" on which to build again.

THE KOHLER PROCESS.

I notice on page 4 of GLEANINGS, a reference to the Kohler process of getting queens purely fertilized. I would like to have a full explanation of the process, and your opinion in regard to it.

WM. C. SMITH. Warsaw, Mo. Feb. 6th, 1878.

The Kohler process was given in the Aug. No. of the A. B. J. for 1868. It is substantially, keeping the young queen, with a sufficient number of drones, from flying, until so late in the afternoon that the common drones have all ceased flying. The hive or nucleus is then opened, and a teacupful of warm diluted honey, poured, a little at a time, directly on the cluster. This sets the workers crazy, and very soon the queen, drones and all, sally forth for a flight. If of the proper age, say from a week to ten days old, the queen is almost invariably fertilized within a half hour or less. The hive containing the bees, queen and drones, may be placed in a cellar, after the queen is 3 or 4 days old, and kept there until the age given above. I am inclined to think the plan has never been much used, because it is too "much machinery." You can readily start a young queen out to take her flight, by simply giving them the warm honey, as you can easily demonstrate.

RABBETS WITH NOTCHES IN THEM.

Prof. Cook objects to the metal cornered frames "because they slide about in the hive too easily." It occurs to me that this objection can be entirely obviated by cutting small notches in the tin rabbets. These notches, too, would space the frames, so that all would hang at the exact distance apart which might be decided upon. O. CLUTE.
Keokuk, Iowa, Feb. 7th, 1878.

Your idea has been very often advanced, but the objection is that we cannot slide the frames along when we wish. The great advantage of the metal rabbets, is that they allow the frames to be moved easily close up, or apart when handling them. Besides, the notches would prevent the frames hanging straight downward, and would not allow of their being placed at any exact point chosen. I have never been troubled by the frames slipping about, after the bees had been at work long enough to fasten the combs with their slight attachments. After trying combs fixed at exact distances, for many years, I decidedly prefer them movable at pleasure.

FLORIDA; MOVING BEES IN HOT WEATHER, &C.

Soon after we came here, we bought one colony of bees, thinking to make a "small beginning;" they had to be moved some distance and were nearly all smothered by the time they landed, but the owner came along and without our complaining, said he would bear the loss, as it was too warm to move bees. We then engaged 4 first swarms; they will be coming in the latter part of Feb. or beginning of March, as bees commence swarming here about that time. Bees are very profitable here I think, unless honey comes in very slowly as they work some in every month; but I fear the moth will be the greatest trouble. Dragon flies are also very plenty here and our hot sunshine may melt combs down.

Would like very much to see an article on Ventilation adapted to "the South." I think GLEANINGS greatly improved with its drawings, for you know there is nothing like "pictures" to make one understand. CLARA SLOUGH.

Daytona, Florida, Jan. 18th, '78.

The Simplicity hive moved forward on its bottom board, will give you all the ventilation you need, I think. We shipped bees last summer, in the very hottest part of the season, in these hives, by tacking wire cloth both on the top and bottom, giving them a constant draft *through* the hive. Where wire cloth was put only over the top and entrance of the old style L. hive, the comb melted, and the bees were drowned in liquid honey. Another item in favor of the light plain Simplicity form of L. hives.

TRIALS OF ADVERTISERS.

I think I must tell you the result of my advertising. I paid you and Newman $8.20 and sold two swarms of bees. One of them I sent with my horse and wagon 5¾ miles, and after 3 days, received a postal saying that I must prepay the freight or they would not be shipped. So I had to send my boy again through the *mud*, for muddy it *was*, and most fearfully so. Considering this, with all the correspondence I have had to answer, you may guess how much I made. ALBERT POTTER.

Eureka, Wis., Dec. 8th, 1878.

You have proven pretty conclusively, friend P., that it does not pay to advertise bees in the fall; but if you were to offer them in the spring, after safely wintering them, I think you would make many more sales, even if you charged much higher prices.

In the fall of '76 I put up 40 swarms of bees. At the commencement of the honey season of '77, I was reduced to 16 swarms in not very good condition. I considered myself in the company of "Blasted Hopes" but did hate to give up and be placed there, so I said nothing and let my subscription expire with the June No. But fortune has favored my efforts and from my 16 swarms, I had, at the close of the honey season, 35 swarms in good condition, with 1500 lbs. of extracted, and 100 lbs. comb honey. I found quick sale at from 9 to 12c per lb. for the extracted. L. WEBSTER.

Winneconne, Wis., Jan. 14th, 1878.

I have been keeping bees for more than 40 years, and have used every hive of any note that has been manufactured, commencing with the patent hives about 1840, at which time I purchased my first individual right from a Major Roberts, of Kentucky, which hive cost me $57.50—a bee palace—carpenter's bill, $50.00—painter and glazier, $2.50, and right $5.00. I may safely say that $2000.00 is about the amount I have invested in patented bee hives. I was then living in Richmond, Va., and came to this part of Va. to go into the business largely. I was unfortunate in my location and became rather disgusted. A. S. MADDOX.

Cleek's Mill, Bath Co., Va., Jan. 22d, '78.

HONEY THAT CANDIES AS FAST AS GATHERED, AND BEES AND PEACHES.

I send you a sample of honey which my bees produced last season. The sugar was grained in the new comb that is partly filled, when I took it out, and it was built in where I left a vacant place 2 or 3 days. The piece that is capped is a fair sample of all our surplus this year, except that much of it is grained. I think it impossible the bees stole sugar, as we are 2 and 3 miles from any store. Bees worked on peaches considerably and we had a great deal of honey dew. If you can tell what is wrong please do so. By the way, do bees ever puncture the skin of peaches or grapes? or do they work where other insects have commenced? Some peach growers about us set traps and destroy a great many bees because they work on their peaches. From my own observation I fail to catch them breaking the skin, but they hunt round till they find a hole or crack in it.

In making your candy with flour, do you use fine flour, or wheat meal, or graham? Would it not be good policy to put in a frame of candy about the last of March to stimulate brood rearing, so as to be ready for apple bloom? W. D. HINDS.

Townsend, Mass., Jan. 22d, 1878.

It is candied honey, of some kind, without any question. It resembles, when seen in the cells, grape sugar; and it is quite probable that it is a kind of grape sugar produced by fruit, or perhaps by aphides. Several letters received of late, seem to indicate that this form of grape sugar, is quite common, during some seasons. All honey, it should be remembered, is the greater part of it, grape sugar, and it is this that makes honey candy. The grape sugar of commerce, will often turn solid in 24 hours after the bees have placed it in the cells, but this does no harm, for they can use it about as readily one way as the other.

I think bees rarely puncture peaches, but I have no doubt they would, if they learned how; the Italians are quite equal to the task. If your neighbors get an idea the bees are injuring the peaches I would pay them for the damage done, or remove the bees. Such matters can almost always be arranged pleasantly.

We have tried different kinds of flour, but prefer the common white flour for candy. The flour candy will start brood rearing at almost any time, and we shall give it a thorough test this spring.

In Jan. No. of GLEANINGS, 1878, page 7, you ask concerning experience in wintering with aster honey. We have found that it will always candy very soon, and when granulated after extracting makes a beautiful and very palatable honey. The grains are sometimes so fine that it is soft like butter. It makes poor winter food because there is not time, after gathering, for it to ripen well. Where aster abounds, large amounts of it may be gathered by furnishing empty comb or fdn. to receive it and replacing full combs of summer honey put away during the aster season. Thus, large amounts of aster honey may be gotten and good wintering secured.

JAMES W. SHEARER, Liberty Corner, N. J.

I extracted from 7 young swarms last season, 580 lbs. I extracted none after Oct. 18th. They gathered plenty for winter, after that time. Bees are now bringing pollen. I have, for the last two months, been making hives and transferring from log gums to L. hives. Bees are very rich. I have over 160 more to transfer this winter; our swarming season comes in March and April.

R. DEVENPORT.

Richland Spring, Texas, Jan. 20th, '78.

MARTINS AND BEE MARTINS.

Protect the martins that come from the South, they will not harm bees or anything else. They come in spring and leave in the fall. I have three martin houses. There is a bee martin that comes in the spring that does not build in boxes like the other martins, and kills thousands of bees if left alone; they sit on fences and trees near where the bees have their crossing and catch them, and then light on the fence again, and will stay around the apiary the whole season. I frighten them away by shooting at them with powder two or three times a day.

JOHN BOERSTLER, Gilead, Ills.

THIEVES.

The thieves had been at work at my bees, the first of Nov. I then put half of my 30 stocks in cellar, the other 15 I packed with hay in boxes thinking they would be safe in that way. All appeared to be right for two or three weeks, but one day the bees were flying in and out of one box. On examination I found it all open, half the covers gone from some and a half dozen others disturbed more or less. That made me sick; I did not know what to do for I did not want to put them all in the cellar after I had been to the trouble and expense to pack them up, so I fixed them up, nailed down some of the covers and piled cord wood and lumber on the other, and thought perhaps they would not come again, as they had such bad luck in getting honey; but the next morning as I went to the door I looked out on the yard and, *lo! and behold* there was a hive lifted out of a box 4 feet high standing on the grass, with half the covers out scattered around; one heavy comb standing beside a tree and indications of a contest with the bees which probably drove them off before they got ready to go. It was a sickening sight to see my pets slaughtered in that way after my hard work and anxious watching. I found some frames and cover on a vacant lot a quarter of a mile away. I am satisfied who the thief is but can not get proof, so I shall have to content myself by fortifying my premises with telegraph wires around and through in every direction attached to an alarm. They had better get out of the way of the old musket for *I shall shoot.*

N. A. PRUDDEN.

Ann Arbor, Mich., Dec. 26th, 1877.

It is really too bad, friend P., and it is hard to imagine how anybody can be so depraved; I can not think they realize what they are doing. For the good of community, and for the sake of setting an example before others, I would advise punishing such offenders, to the full extent of the law, when found out. A tall tight board fence, adjoining your dwelling, will be more efficient than your wires, and will save bees by keeping off the cold winds, as well as thieves.

I have 30 colonies, a few of which are pure Italians, 2 blacks and the rest hybrids. We had a poor season, scarcely any natural swarms issuing. The blacks gathered very little honey above their winter supplies. My largest yield was 80 lbs. from an old stock of pure Italians, and 15 lbs. from a *swarm* of Italians. My 2 blacks furnished me "nix."

GEO. B. REPLOGLE.

Unionville, Iowa, Dec. 17th, 1877.

HURRAH! FOR THE FLOATING APIARY.

I am busy fitting out 2 large flat boats 100 feet long and 22 feet wide for Mr. Perrine & Grabbe, to accommodate 1000 or more bee hives, to operate on the Mississippi river, leaving here soon after the swarming season is over, in April, and when the first bloom has passed away from the willow and tallow trees, they will move about 200 miles and lay up 10 or 12 days, just as the various blooms may open, up to St. Paul. The running will be done at night. Two large bee boats and a steamboat for towing is rather a costly experiment as well as a novel one. I believe the idea is taken from the ancient Egyptians who floated their bees on rafts on the river Nile.

EDWARD NOTLEE.

New Orleans, La., Jan. 28th, 1878.

CAGING LAYING QUEENS.

How long can I cage a queen in honey season without injury to her, in or out of a colony? I bought 4 colonies last spring in box hives. I divided one in transferring it; the one that had no queen made more honey than any other stand, and it is the heaviest now.
ROBERT BUTLER.

Lewisville, Ind., Jan. 30th, 1878.

I presume you could cage a queen all summer, without doing her any particular injury, if she were among the bees where they could take care of her. It would be a loss however, for she would better be somewhere, laying eggs. Your queenless colony, probably reared a queen very soon, and that was why it prospered. Caging the queen may sometimes give a temporary increase in honey, but it must be a losing business in the end, if one cares to increase in bees as well as honey.

Will the duck you use to cover the frames, answer in place of a "honey board," upon which to place boxes for comb honey?
W. N. TRIMBLE.

Concord, Mo., Jan. 7th, 1878.

It might be so used, but as you would have to cut holes through it for the bees, it would be spoiled, which would make it more expensive than strips of wood. If you must use boxes, put them right on the frames. If you object to that way, make a honey board by nailing some long thin strips (such as we use for section boxes) placed ¼ inch apart, to proper cleats at each end. This will be light, and will allow the bees to get very close to the brood. Would you not better adopt the section boxes, letting the bottom bars of the 2 inch frames that hold them, form the honey board when the boxes are on, and the entire sheet of duck, the covering for frames when they are off?

COMBS CROSSWISE.

I commenced bee-keeping last season, procuring two swarms of blacks and putting them in common box hives with movable frames. Aug. 16th, one hive sent out a swarm, which speedily filled their new home, but to my dismay, instead of following the comb guides they built right across them so that I am unable to get in to see what they are about. Can you tell me the cause of their doing thus? and what am I to do about it?
H. M. TAYLOR.

Parsons, Kan., Jan. 25th, 1878.

You should always watch a new swarm when put into an empty hive, my friend, and not let them build crosswise. Had you given them a couple of good combs for a pattern, they would probably have gone all right, or had you simply elevated the back end of the hive, it would most likely have started them straight. If we find a swarm going wrong, we can twist the combs right with the fingers, in a very few minutes; as it is, you have a job of transferring on hand. If you cannot get out one comb in tolerable shape, cut along the sides with your honey knife, and then turn the hive over on the top of another one. Lift the hive from the frames, and you can then easily cut out the combs and put them in straight. After you have finished, you will probably conclude it is the best way, to make the bees build them right in the first place.

PUTTING AN UPPER STORY ON "PATENT HIVES."

I have 8 hybrid swarms, 5 in Buckeye hives, the other 3 in Hazen's Non-Swarmers. Do you think it would pay me to get the 2-story Simplicity or chaff hive? I have to winter on the summer stand. I got but about 60 lbs. from the Non-Swarmers. From the Buckeyes 0. If I would take off the top of the B. hive, I could probably fix on an upper story Simplicity hive (with section boxes) so as to answer tolerably well. It would of course be a troublesome job and no very tight fit.
HENRY KELLER.

Wrightsville, Pa., Feb. 6th, 1878.

I do not know that either the Simplicity or chaff hive, would give you any more honey than those you have, so far as the hives are concerned, but they are so much simpler to manage, you would probably take better care of your bees. I have tried putting upper stories on odd shaped hives, but think it less trouble in the end, to transfer them.

Our Homes.

Therefore, if thou bring thy gift to the altar, and there rememberest that thy brother hath ought against thee; leave there thy gift before the altar, and go thy way; first be reconciled to thy brother, and then come and offer thy gift.—Matt. 5; 23, 24.

THERE is one portion of the text above, that I would call attention to; it does not say, if you remember you have ought against your brother, but it says, "if thy brother hath ought against thee."

A pleasant letter from one of our readers, speaking of the Home papers, contains the following:

> I can't deal with men as you want me to do. If a man deals honestly with me, I'll do the same by him, and with everybody, but if a man willfully cheats me out of my just rights and I can by any means get back what is rightfully my own, *I'll do it*, but I want no more from him than is my own. If one man cheats *me*, I will not cheat *another* to make it up. If a man hits me on one cheek, I'll give him one on *his* if I can. I know you try to teach a different spirit from that, but I can't agree with you there.

As the writer is a jolly good natured sort of a fellow, I presume he gets along very well with his code of morals, more especially, as he is generous and liberal hearted. We will suppose that he is so fair, in all his dealings, that he could be trusted to take just what is right, and no more; are you sure his neighbors would all agree with him in respect, of what is right? of course they would not, and then, the thing for them to do, is to watch for an opportunity, and fix it according to *their* ideas of what it should be. Our friend might take the very common attitude, saying,

"All right! let them drive on; they are welcome to all they can get. The one that gets ahead the farthest, is the best fellow."

This state of affairs does very well for awhile, but the narrow line between sharp dealing and downright theft is soon approached, and pretty soon one party steals—they always call it by some softer name. at such times—from the other. Perhaps it is in such shape that you can not well prove it, and therefore the only way you have left, is to steal back. Soon somebody gets into a lawsuit, and very likely into jail. Worse than all, many times the one who is least guilty, gets into jail. The reason is, that the officers of the law, are often of that class who hate those who hate them, and love those who love them, as we had it in our text last month. If the offender has, at some time, done them a service, they screen him, but if he has wronged them in some way, in times past, he is now in their power, and they can easily make matters "square."

Do you say that a man ought to be ashamed of himself, who would thus abuse his privileges and station? Perhaps he would not state it in quite that light. Put it this way; "I am sure that man is a bad man, from the way he treated me when we had that trouble years ago, and I believe it is right, and my duty, to have him punished." If the offender was a personal friend, the reasoning for the same offence, might be, "Appearances are rather against this man, it is true, but he was provoked to it, and I can not think he is a very bad man, for he showed such an excellent (?) spirit, when appearances were against me, several years ago."

I need hardly say that an officer of the law, should be entirely free from all such feeling, but I tell you it is a very difficult matter, to divest one's self of all tendency to favor those who have favored us, and *vice versa*. I know of no other way of doing it, than to cultivate a spirit of loving our enemies, and doing good to those who hate us. I suppose our Saviour knew just how much we lacked in this direction, when he gave this advice, and that he intended it as a corrective of the natural tendency to love none but our friends.

When I was a boy, I was very bashful and awkward, and it seemed to me I was always. when in public, making one awkward blunder or another. If I went to hotel, I was afraid I would not do everything just as other folks did, and if anybody laughed at me because I was not posted in the general usages of society, the matter used to weigh on my sensitive spirit to such an extent I could hardly sleep the night afterward. It has just occurred to me that my antipathy to Conventions may be, a great part of it, owing to this very cowardly feeling that I may make some great blunder, and be laughed at for my ignorance. If this is the case, perhaps the very best thing I can do, is to go and be laughed at. This would perhaps be the readiest means of curing me of that foolish pride that prevents me from being willing to be laughed at; supposing, of course, that I might be able to do some good by going. Well, when I was a bashful boy I stopped at a hotel, and when I went to pay the bill, I offered the money to the hostler; somebody laughed at me and told me to go to the landlord. Frightened out of my wits, almost, at the *awful* blunder I had made, I went to the landlord, who, seeing how excessively rustic I was in my ways and manners, charged me at least double the usual price. My brother censured me for paying such an exorbitant bill, then told the friends where we were visiting, about my going to the hostler; and altogether, I was just about as miserable during the visit as I well could be. I declared mentally, I would go way off in the woods and live alone, where none in human shape could laugh and jeer at my unfortunate and awkward mishaps. Can you think how I thanked a kind friend who had much experience in the world, for telling me kindly it was no matter at all, and that anyone might have made the same mistake? How my childish heart clung to him, and remembered it for years afterward.

Now about the landlord who took my hard earned half dollars. I made up my mind that if I could ever cheat him, oh! would it not be sweet, to take that money back with compound interest! I remembered him full well, and many times did I mentally plan some way of cheating him back.

The opportunity came; years afterward, he came into my store, and asked if I could put a mainspring in his watch right away. It is a long lane that has no turning. thought

I, and when examination revealed that his watch had not broken the spring after all, but simply a pin that would be worth about a dime, I felt almost as if the chance given were providential. He called for his watch, and took out his money. The good and bad angel were debating the matter.

"What a fool you are," said one. "You told him the price would be $1.50, and he expects to pay it. There is nothing wrong in your taking it, in any case."

"You are thinking of taking money for which you have rendered no fair equivalent," said the other. "If he cheated you in times past, it rests between him and his God; do not stain your soul, by doing what has even the appearance of evil."

I looked at him while the conflict was going on. He had grown much older and sadder looking in all these years; his shiny hat, and fine clothes, had given place to a rather shabby suit, and his face showed traces that strongly betokened intemperance. No, no, my friend, I do not want *your* money. May God forgive you all the wrong you did me, as freely as I forgive you this moment.

"The mainspring was not broken; only a pin," said I, as I pushed back the money.

His countenance lightened up in an instant.

"Have you taken pay enough?"

"Plenty, thank you."

"I am *very* much obliged, indeed," said he as he went out with a far brighter face than he had when he came in, and I, as I went about my work, was better and happier all day, from having resisted temptation.

My friend; which is the safer way for a young man just starting out in life? Which way, in the end, would probably win money faster? We often criticise those in public offices; which side of the question would you prefer them to take?

I would, by no means, advise letting everything go, but I would talk over the matter pleasantly and try to have it fixed. If this did not succeed, and nothing could be done in the way of arbitration, if the matter were worth it, it might be best to go to law; otherwise, I would forgive it, and let it go.

Many can get along with money matters, who can not overlook offenses of another kind. The following incident illustrates several points I wish to touch:

Two soldiers in our late war, were intimate friends, and faithful Christians. We will call them M. and F. Although their Christian zeal, and brotherly intimacy was proverbial among all the boys, some misunderstanding occurred one day, and F. called M. a "hog." Of course M. talked back, and they parted for the first time in anger. M. had done nothing, and so he went his way, feeling for several days unconcerned in regard to the matter. Finally, one evening, as he sat in his tent alone, he began considering, and at last started up with a determination of going to F., and asking pardon for the harsh words he *did* say, after the insult he had received. He soon found him. and going straight up to him, he put out his hand and said,

"F., will you forgive me?"

"Why my friend *you* have done nothing! nothing at all; it is I who should ask forgiveness."

At this he burst into tears, and—can we not say that Satan got out of his heart in "double quick?" *I*, am inclined to think he did not so much as stop to look behind him, for he knows very quickly when there is no sort of chance for him to hang round any longer. The two friends never had any trouble afterward, and ere many days, F. was gone to that last home. M. told it in our young men's Bible class yesterday morning. Do you think he has ever since felt any unkindness toward F. because he yielded to Satan in an unguarded moment? and can you not imagine how fervently he thanks God, for putting it into his heart, to go to F., even if F. had never thought of coming to him?

There are three points illustrated in the above little incident, that I wish to notice. One is the idea of using the term Satan, as if he were a personal being. I know from the letters I receive, that many of you, although you agree in the main, with my Home papers, object to this kind of what you may term, superstition. You agree in regard to the results, and most heartily approve of the fruits of missionary work and reform; but you are very much inclined to ridicule the idea of a demon of evil following one about, just to get him into mischief. But a little time since, I made all sorts of fun of people who were so behind the age as to encourage and try to teach such ideas, and so I can very easily sympathize with you. Now let us see if we can not view it in a light, in which we shall all agree. In the above little story, where I have said Satan, supply the term, "evil impulses," and you can if you choose, use "good impulses," where I said God.

If I should make the statement that a person who commences to yield to evil impulses, will find himself drawn stronger and stronger, the farther he goes in a downward course, you would all assent, for we see the statement verified all about us. It was giving way to evil impulses that made the trouble between the two friends, and it was turning about and heeding good impulses that brought about the reconciliation. Suppose we term prayer meetings, schools of reform, or meetings to encourage each other in developing all good impulses, and discouraging all evil impulses. If prayer meetings are not kept up for this purpose, I would not call them prayer meetings at all. Suppose you were to organize a temperance meeting in the midst of a people almost ruined through the evils of drink; suppose that you discovered also, other heinous sins and crimes all about and among this people, making temperance but one of the *many* things to be talked about. You go about among them, and gather up those who feel the need of reform, and hold a meeting. As parents are often anxious about their children, when they are lost almost beyond hope themselves, you would probably succeed in getting a room full of the children, if nothing more. The children would probably come with cleaner faces than they have on the streets, and better dressed. They instinctively, seem to feel that cleanliness is next to "good impulses," and act accordingly. Of course all eyes are bent wonderingly on you. By their actions, they ask what you want, and what you are going to do. You would probably commence somewhat as follows:

"My little friends, you do not know me very well, do you? Well, we shall soon get acquainted I trust, and then you will have more confidence in me, than you now have. I will tell you what I wish to help you to do. I wish to help you to fix up your little village, to have the houses all painted, to have neat fences and gardens about them, to have every thing neat, tidy and comfortable, and to have you all busy, contented and happy. Have you no money to buy all these things? Well, what is the best way to get money? We are to work for it, are we not?

"Well now, boys and girls, as well as grown up people, do not always like to work; worse still, they very often waste their money, after they have worked for it, and sometimes they steal the money other people have worked hard to get. They often cheat each other. Sometimes the men for whom they work wont pay them, and altogether, there is a great deal of what we call wickedness in this world. The first thing for us to do, is to resolve to try to be good. You are all willing to try, are you not?

"Thank you. Now it is a pretty hard task, you have undertaken, and there will be more evil impulses, probably, than you are aware of. You must fight against them, my friends, and more than all, we shall have to bear it, if some who are now among us, turn against us and hinder us all they can. Such is always the case, but we must be bold and courageous, and bear in mind that good impulses in the hearts of people all about us, will spring up, and that we shall have help in many strange and wonderful ways, if we only persevere and keep trying."

Of course you make good your promises, and set the little ones at work, and guide and watch over them. You get no pay for all this in money, but you that have never tried it, have no idea of the good and glorious "impulses" that begin to swell and stir your whole being, of how the world grows larger, and humanity grows dearer, as your work goes on; of how life has new charms and existence new and keener thrills of delight. As these pupils begin, bye and bye, to take hold and help, and as the work begins to be taken up by others, and the old grog shops begin to give place to scenes of beauty, and schools and civilization begin to change the very atmosphere of all round, these good impulses seem to grow into a significance that makes one feel as if there were in them some mighty power or some connecting link between our humble selves and the great purposes of the creation of the universe.

A brother of mine says this is nothing but plain common sense; that anybody will be happy who goes to work unselfishly for the good of mankind. Then why do you not do it? My sceptical friend in jail, admits that the work of civilizing and educating barbarians, has almost all been done by Christian people, and says he does not understand why it is. He says farther, that he thinks it quite likely that they would never make much progress had they not some universally recognized standard, some flag that they might all rally round, or some solid rock which could not be swayed by the conflict of differing opinions.

At our last Bible class in jail, a man who has just this very morning gone to the penitentiary for an attempt to murder, interrupted by asking what I thought about eternal punishment. I told him it was something beyond my comprehension, but that I was willing to trust God to make it all right. He said he did not think it all right by considerable. As the lesson closed, I had a few words with each individually, and as I came to him, I asked him if he could not, in his own mind, form some idea of what God ought to do, to be just to him, and to every one else.

He said he thought he could.

"Will you not consent to abide by the decision of a God who is just and impartial? one who is exactly as *you* know he ought to be?"

My prayer had been answered; the simple question placed him before God, not before myself, and it placed him before the God he had himself acknowledged. In other words, the man saw himself as God saw him. I was out of the question, and as he spoke quietly and low, as he gave me his hand, with a softened look in his eyes, I felt that this poor brother in jail, with the stain of murder on his soul, was perhaps nearer the gates of heaven, than some who proudly proclaim their good moral lives, and their indifference to a hereafter almost in the same breath.

Your ideas of God may not be like mine, but will you submit, and obey God just as you think he should be? If you have committed murder in your heart, will you say, give me the punishment that I deserve but let not the laws God has established for the good of the universe, be suspended? Can you say, "thy will be done," and commence the long weary years of servitude as has our friend, because you know it is just that you should?

SIMPLICITY HIVES, INTRODUCING QUEENS, &c.

AS our pets are laid away, for their winter nap, I conclude to give you a beginner's experience for the season. We (my "major half" and I), commenced in the spring with 17 colonies, and increased to 32, 13 of which were natural swarms and 2 artificial. Two others took French leave. Seeing so much in GLEANINGS about sections and Simplicity hives, we concluded to send for one to try them. We put a first swarm into it and took 95 lbs. of honey from that one; others no doubt have done better, yet we are very well satisfied with that, even if the hive did cost $7.65 before it reached home; and we think for comb honey there is nothing like sections, with starters, and tin separators. We have taken 1000 lbs. of comb honey, and intend to Italianize next season.

We sent after two, dollar queens, and what a time G. G. had trying to introduce them. We took the old queens from two hives (caging them for reserve), but they died; we gave those received from you, only to be slain. They built queen cells, concluding, as I suppose, to raise their own, but G. G., not willing to let them have it all their own way, sent again for a queen, and through some mistake it was mailed to Pana, instead of Owaneco as ordered. This made so much delay that they hatched queens. Then came the tug of war. G. G. with bee hat and smoker in hand, prepared to catch her majesty. He took out one frame after another, carefully examining each side until all were removed, then back again with the same care; then he tried shaking them off on a sheet, placing the cap on it for them to cluster under. By this time the robbers gathered round so thickly he had to close the hive and leave it for awhile. Part of the bees went in and a part remained very contentedly under the cover; so, thinking that the queen was in the box, he gave them some frames of sealed honey, supposing there would be no farther trouble in introducing your queen. He waited for them to start queen cells, but they would not. Upon examining them again, he found them paying their respects to—I don't know what to call it, it was not a bug—it did not look like a bee; we wished Novice and faculty would name it. Next morning they had started queen cells and finally she was liberated to attend to her maternal duties.

If convenient, please state in some future number of GLEANINGS, what would be *your* plan for the speediest and safest mode of increase, and you will oblige the "minor half" of G. G. LARGE.

Millersville, Ills., Dec. 20th, 1878.

I think it must have been of one the queer half queen, and half worker bees we have mentioned heretofore, that you found. Your experience introducing, is like that of a great many other beginners, and perhaps some veterans, now and then. You have done nicely, so far as honey is concerned, and you can scarcely hope to do as well every year.

I shall have to refer you my friend, to the A B C book, for information on artificial increase, it would be wronging our old subscribers, to go over the same matter again. This answer will apply to a great number of other queries of similar nature.

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The Garden. THE GARDEN is an elegant quarterly Magazine, devoted to the culture of Flowers and Vegetables. It is printed on fine book paper, profusely illustrated, and contains a splendid **Colored Plate** of Flowers. *Price, 25 cents a year, and 25 cents worth of Seeds free.*

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Benj. A. Elliott & Co.
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DOVETAILED SECTION HONEY BOXES.

IN THE FLAT, PRICE PER 1000 BOXES.

Any dimension not exceeding 2x5x5.......... $10 00
The above is 50 cubic inches, for larger sizes add 10c per 1000 for each additional cubic inch, outside measure. Extra price for less than 500.
Just right to fit in L. frames 2x4¼x4¼........ $9 50
If the grooves for holding the fdn. is omitted 25c less per 1000.
Broad L. frames to hold 8 sections, per 100, in the flat $4 00
The above are made like all wood frames; if sections wanted in the flat without dovetailing, per 1000, $1.00 less. Sample boxes by mail 5c.
SMITH & BUELL, Manufacturers,
Union City, Branch Co., Mich.

CANADA.

Ontario Bee-Keepers and others intending to purchase Foundation or Foundation Machines, Hives, Section Boxes, &c., will do well to hear from me, before purchasing elsewhere. H. TENCH,
3-4 Pottageville, Ontario, Canada.

PURE ITALIAN BEES.

One swarm, $8.00, five or more, $7.00 each; all in 8 frame L. hives. Are to be sold between April 1st, and May 10th, '78.
3 ALBERT POTTER, Eureka, Wis.

Queens Wanted,
And Queens For Sale.

I will pay $1.00 for all the Italian queens any of our Southern friends may find it convenient to send me during the month of May. These same queens, I shall sell for $1.50; you are to guarantee safe delivery, and I shall do the same, but nothing farther. I have made this arrangement to answer the great number of questions in regard to buying and selling early queens. In June, I will pay 90c, and sell for $1.25; after July 1st, 75c, and sell for $1.00.
A. I. ROOT, Medina, Ohio.

LANGSTROTH FRAMES AND SECTION Honey Boxes cut ready to nail for $6.50 to $14.00 per 1000. Also Honey Extractors.
2-3d Address, R. R. MURPHY, Garden Plain, Ill.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles see our Twelfth Edition Circular and Price List found in Jan. No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting, for prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	" " waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees; 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 4 in. $1.00; 5 in. $1.25; 6 in. $1.50; 7 in. $1.75; 8 in. $2.00; 10 in	3 25

The above are all filed, and set, and mailed free of postage.

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
1	Cages, wood and wire cloth, provisioned, see price list	05
12	" " " per doz	50
	" Larger size double above prices	
20	Candy for bees, can be fed at any season, per lb	15
	" " Eight lb. slab in L. frame	1 15
0	Cards, queen registering, per doz	06
0	" " " per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	" " without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	" " top only, per 100	1 00
15	" " bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
12	Duck, for feeding, and covering the frames —bees do not often bite it—per yard, (29 inches wide)	20
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $7 50 to 10 00	
	" inside and gearing, including honey-gate	5 00
	" Hoops to go around the top	50
	" " per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	" The same, large size, double above prices	
2	" 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	" Vol's IV and V, each	1 00
0	" Vol. III, second-hand	2 00
0	" first five neatly bound in one	6 00
6	" " " unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	" " ½ doz	5 25
	" " ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	50
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	" " Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0 0	" Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	20
0	Photo of House Apiary and improvements	25
0	Queens, 50c to $6 00. See price list	
2	Rabbets. Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	" Catnip, good seed, per oz. 20c; per lb.	2 00
0	" Chinese Mustard, per oz	15
18	" Mellilot, or Sweet Clover, per lb	60
18	" White Dutch Clover, per lb	60
	" Motherwort, per oz. 20c; per lb	2 00
18	" Mignonette, per lb. (20c per oz)	1 50
	" Simpson Honey Plant, per package	05
	" " " " per oz	50
18	" Silver Hull Buckwheat, per lb	10
	" " " " peck by Express	75
18	" Summer Rape. Sow in June and " July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
10	Smoker, Quinby's (to Canada 15c extra)	1 50
5	" Doolittle's	25
	" Bingham's $1 25; 1 60;	2 00
25	" OUR OWN, see illustration in price " list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of tarletan (almost as good)	50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned per square foot	15
2	Wire cloth, for queen cages	12
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	07

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

COMB FOUNDATION,
45 TO 55 CENTS PER POUND.
4 C. R. CARLIN, Shreveport, La.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	50	6	3
6— " " *better quality*	60		3
7—*Pocket Magnifying Glass*	60	7	3
8—*First or second Volume of* GLEANINGS	75		4
9—*Best quality Emerson's Binder for* GLEANINGS	75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

Italian Queens and Bees at very Low Prices.

Two frame nucleus, in April, with dollar queen $3 50
" " " " May, " " " 3 00
The same as above from June 1st to Aug. 1st... 2 00

All well stocked with bees.

I consider this the only *safe* plan for sending queens early.

Dollar queens after May 15th, (as I do not consider it safe to send single queens sooner),—80 cents.

Whole colonies, after June 1st, in single story Simplicities, with 8 combs, and two frames empty, with such Italian queens as I have, $5,00.

Simplicity Hives, Section Boxes, Queen Cages, Chaff Division Boards, &c., &c., at Root's prices.

I will guarantee safe arrival, and that all shall be just as represented.

2inq G. W. GATES, Bartlett, Tenn.

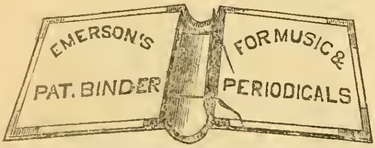
DESCRIPTION AND PRICES OF OUR

NEW HIVES
AND
SECTIONAL HONEY BOXES,

Free. BARKER & DICER,
4d Marshall, Mich.

CANADA.

Ontario Bee-Keepers and others intending to purchase Foundation or Foundation Machines, Hives, Section Boxes, &c., will do well to hear from me, before purchasing elsewhere. H. TENCH,
3-4 Pottageville, Ontario, Canada.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years) gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

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My annual catalogue (a complete garden and floral guide—90 pages) of choice Northern grown seeds—1000 varieties, bulbs, garden and apiarian implements, supplies, agricultural books, bees, queens, &c., &c., is *now* ready—sent postpaid on application.

Address, C. F. LANE, N. W. Apiary &
2tf Seed Warehouse, Koshkonong, Wis.

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Each Number contains THIRTY-TWO PAGES of reading, many fine Wood Cut Illustrations, and one COLORED PLATE. A beautiful Garden Magazine, printed on elegant paper, and full of information. In English and German. Price, $1.25 a year: Five copies $5.00.

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Vick's Catalogue,—300 Illustrations, only 2 cents.

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BEE HIVES FOR SALE CHEAP

I will make good Langstroth hives, or furnish the stuff cut ready to put together, or other styles if wanted; state the number wanted and I will give prices. F. M. DICKINSON,
2-4d Whitney's Point, N. Y.

Colonies and Queens.

IMPORTED QUEENS AT $4.00.

After May 20th we will sell imported queens at the above price.

Colonies with Imported Queen in April...... $13 00
" " home bred " " 9 00
" Ten or more, " " each " 8 00

Tin pails for honey, also Comb Foundation.

Send for circular. CHAS. DADANT & SON,
4d Hamilton, Hancock Co., Ill.

BEE-KEEPER'S SUPPLIES FOR 1878.

Italian Queens—Nucleus and full colonies—Comb Foundation—Hives and Section Boxes complete, furnished on short notice. Ten years' experience in Bee-Keeping and Queen breeding. Satisfaction guaranteed or money refunded. Send for prices.

Eggs and chicks from high class land and water fowls.

2-7 VALENTINE & SON, Carlinville, Ills.

ITALIAN QUEENS.

All bred from imported mothers of my own importation. Dollar queens, $1,00; ready in April. Tested queens before June 1st, $3,00; after, $2,50. Full colonies of Italians from $7,00 to $10,00. Two frame nucleus with tested queen, before June 1st, $5.00, after, $4.50. Comb Foundation, Bee-Keepers' supplies., &c.

2-7d PAUL L. VIALLON, Bayou Goula, La.

ITALIAN QUEENS FOR 1878.

We are headquarters for Italian Queen Bees. Our sales average double those of any other dealer. Have had 16 year's experience. Send for price list of Queens, Section Boxes or other kinds; fancy Crates, Hives, and Bee-Keeper's supplies generally.

4d H. ALLEY, Wenham, Mass.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. APRIL 1, 1878. No. 4.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more,* 60c. *each. Single Number* **10c.**

MY EXPERIENCE. NO. 4.

TRANSFERRING.

I HAD never seen bees transferred, and I confess, I rather dreaded the job. I had lately had a talk with a "bee man," and his "opening remarks," were not very encouraging. He said the bees would run all over, the honey would drip from the combs and stand here and there in puddles, the combs would be thick and crooked, and before the job was finished I would be completely discouraged. After talking a while in this strain, he made the following encouraging remark: "I'll come down and transfer your bees for $5.00."

"Oh ho!" thought I, "and so that is why you have been talking in this doleful strain; I'll transfer my own bees now, if for nothing more than to show you I *can*; and, after all, if I am going to handle bees, why not commence *now*?"

May 14th, I transferred my bees. Sugar Maple was in blossom, and the yield of honey was quite large. If I had waited until fruit trees were in bloom, I do not think it would have been so well, as there was but little honey gathered at that time.

About 10 o'clock, on a pleasant day, I tried to drive the bees from a hive into a box, but did not succeed. I presume I did not drum long enough. After drumming a few minutes, and finding they were not inclined to leave their home, I carried them into the kitchen, and set them, bottom side up, upon the table. I then put a box, about 7 inches deep, 6 inches wide, and long enough to reach across the hive, on the top of the hive, on the opposite side from which I wished to commence taking out combs. I kept them down among the combs with smoke, cut the combs—by running down a hand-saw—from the side that I wished to remove first, sawed off the cross sticks, and pried off the side of the hive. Whenever the bees would show themselves I drove them down with smoke, always driving them towards the small box that sat on top of the hive. After prying off the side, I commenced cutting out the combs, and putting them into the frames. I fastened them in with thorns, using strings when it was necessary. After I had one or two frames in the hive, I had my wife brush the bees from the combs, at the entrance of the hive, as I took them out. By the time I had taken out all the combs, most of the bees were clustered in the small box. One swarm was so large that it hung down from the box as a swarm does from the limb of a tree. When the combs were all in, I closed the hive, spread a newspaper in front of it, shook the bees from the box upon it, and directed them to the entrance with a quill, managing them just as I would a new swarm. After the new hive was placed upon its stand, the windows were opened, and the bees that clustered upon them were driven out.

While I was transferring the first swarm, I was considerably excited; I worked as though my life depended on it, and the perspiration dropped down in small showers. When I commenced upon the second colony, I resolved to take matters a little more coolly; and, to my delight, I found that it occupied about half as much time as the first one. To transfer a colony now, would be nothing but fun.

SHADE.

I think a grape vine shade, as described in the A B C of bee culture, is the nicest and most Profitable; but as I had neither time nor money to make such a shade, I will tell you what I did do. I planted a row of sunflowers, a foot from the south side of each hive. When they were about a foot high they were thinned out, leaving three, eighteen inches apart, in each row. This gave ample shade; and the "clouded" hives, with their different colored caps, nestling among the green leaves and yellow blossoms, made a very pretty picture.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

You did a very wise thing when you transferred your own bees, and I am inclined to think a great many of our new beginners would come out all right if they would only push ahead just as you did. Your plan is exactly what I would have recommended, only I would leave the hive near its summer stand, moving it perhaps a yard backward. I would never try to drum the bees; pry open the hive and go to work, and you will have them transferred, bees and all, almost as quickly as you could drum them out. Be careful about depending much upon strings, for the bees sometimes bite them off before they have fastened the combs. Strips of wood, wires, or the transferring clasps, are, I think, safer. The sunflowers do very well, but they are not as substantial, and do not bear grapes. It is true, they bear some honey, and the mammoth Russian, has been considerably talked of as a honey plant; a sunflower apiary, would be rather a pretty sight, would it not?

* * *

PUTTING A CIRCULAR SAW IN ORDER.

IN my directions for putting circular saws in order, I forgot to say that the teeth must all be made of exactly the same length. To do this, and to keep them so, you must have your saw fit the mandrel *exactly*, and must, when putting it on the mandrel, always observe to put it on in the same position. To insure this, you will need a mark on the saw, and a corresponding one on the mandrel. Put your saw on just as you want it, and then screw the table up so high, that the table will just clear the teeth. Lay a piece of emery wheel—a whole one will do—on the table right over the saw, and gently screw down the table until the points of the teeth begin to be cut. Stop at intervals and see how you get along; when the points of the shortest teeth are just touched, you are to stop. Now file it as directed, and be sure you put it on the same way every time when the saw is used.

◆

HOW MUCH DOES IT TAKE TO WINTER BEES?

MAY 1st, 1877, I had 20 colonies, and increased to 49. The first of the season was very poor; until the middle of June bees did not gather half the honey they ate; little was gathered before July 15th, when linden began to bloom and from that time, the season was good. I extracted 1750 lbs. and took 34 lbs. box honey from one colony. I bought 4 colonies in Oct. and wintered them in a cellar made in a side hill. The cellar was 8x14 ft. and 7 ft. high. I put my my bees in the cellar Nov. 28th, taking them out two days in Dec. for a fly. I took them out March 7th, all in good order except two. One died and one queenless stock swarmed out the first day after taking them out of the cellar. I weighed each hive when first put into the cellar, and when taken out in March. The following is the shrinkage.

1	lost	10	lbs.		1	lost	14¼	lbs.
1	"	11	"		6	"	14½	"
4	"	12	"	each	3	"	15	"
4	"	12½	"	"	1	"	15½	"
1	"	12¾	"	"	5	"	16	"
5	"	13	"	"	1	"	17¼	"
1	"	13¼	"	"	2	"	20½	"
5	"	13½	"	"				
11	"	14	"	"				

Average shrikage about 14 lbs. per colony for 100 days in cellar. The entrances were open 5 by ½ in. covers raised ½ inch at one end for the escape of moisture. Temperature from 42° to 46°—cellar ventilated at bottom and top. My strongest colony lost but 12 lbs. while in the cellar. How is this, Novice? There are some black bee-keepers living 3 miles from me, and one of them has some *pure* Italians; some are two banded, some 2½, some 3, some 3½ and 4 banded (so he says). A good place to get a new kind of bee, but don't let N. C. Mitchell know of them. One bee-keeper thinks the Italians will starve the black bees out. He saw my Italians round his bee pasture and says that his bees were driven off the flowers by the Italians, they taking the honey. A good recommed for Italians is it not? W. A. EDDY.

Easton, Wisconsin March, 11th, 1878.

The above result is just about as the general average seems to run, and I have not been able to discover that the chaff packed colonies wintered on their summer stands, consume any more than those wintered in cellars, as a general rule. L. C. Root has given some reports in the *Am. Agriculturist*, that seem to show a great advantage in this respect in favor of cellar wintering, but I think taking the winter and spring throu, we shall find very little difference. Colonies in thin hives, with but a thin protection over them, often consume enormously, as I have carefully demonstrated; but we agree, now, I believe, that this is not the way to winter bees. Why there should be a difference of as much as 10 lbs, in colonies of almost equal strength, is something that I think has never been fully explained. There is a vast difference in the amount consumed by different stocks, whether in-doors or out. The report that Italians chase black bees away from the flowers, etc., is current in our own vicinity, among those not conversant with bees.

◆

SOLDERING IMPLEMENTS.

MEND YOUR OWN TIN WARE.

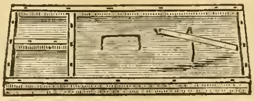
ABOUT 20 years ago—is it possible, that it is really so long?—there appeared in the *Scientific American*, and several other papers, an advertisement headed "Mend Your Own Tin ware," and to the effect that the implements with full printed instructions, would be sent by mail, for 30c.

The signature to the advertisement, was Amos I. Root & Co., Medina, O. The Amos I. Root, was myself, but the "Co." only existed in my fertile but I fear, unscrupulous brain. Many 30 "centses" were sent, and I drove quite a thriving business, for a boy of only 18; I believe the implements generally gave good satisfaction, and I should look back at the enterprise with some degree of pride, were it not for that unfortunate propensity of desiring that the world should think me greater than I really was, which prompted me to think I needed to say "Co.," to induce people to invest.

It was just about this time that the *American Agriculturist* began to do a thriving business, exposing humbugs and swindles, and the first I knew, they had my soldering implements held up to view. My little soldering iron, or brass, rather, they laughed at, and without even reading the printed directions, they pronounced the little metal case of chloride of zinc, with the few strips of solder, entirely worthless for mending tin ware; and so I dropped that speculation, not however, without something of a protest that I was right, and they wrong. We should be *very* careful, before consigning things to the humbug and swindle department too hastily. I am inclined to think some good resulted, at all events, for very soon after, they got up some soldering implements of their own, which they sold for $1.00. They gave a full sized soldering copper, a box of rosin, and quite a bar of solder. As bee-keepers find a great many uses for tin and tin work about the apiary, it has occurred to me, that I might get up a little "kit of tools" that would help you a great deal, or rather might tell you how to get up your own. Well, here we are, ready to talk about soldering.

A 1 lb. soldering copper will cost you about 35c., and a handle for the same, perhaps 10c. It may not be in order when received, and to put it in working trim will be your first job. File each of the four sides bright and smooth, and either with file or hammer, make a nice sharp point to the tool. Soldering irons, like lead pencils and a great many other things, should be kept sharp, to do good work. Get a piece of brick, some solder, and some rosin. Heat your iron hot, but not red hot, and rub it in the rosin and brick dust. This should be placed in a small cavity, in a piece of wood. If you rub the point of the iron hard against the wood, the brick will scour it bright, and the rosin will coat it so that no air can oxidize the copper. If you now melt a little from your bar of solder, in the cavity in the wood, it will readily unite with the copper and cover the surface as if it were dipped in quicksilver. When it is tinned all over, it is in working trim. Every time you forget and let the iron get red hot, it will burn the solder off, and it must be tinned over again, in the same way.

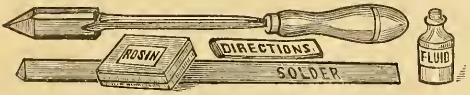
If you wish to solder on bright tin, you have only to fasten the pieces securely where you want them, and then just solder it. If you look at a tin-smith you will think it is just as easy as can be, to make the bright melted tin run down the joint so smoothly that it looks like one continuous piece, but when your own inexperienced hands undertake the task—oh dear, oh dear! you are awkward, without doubt, but perhaps the greatest trouble is that you have not all the necessary appliances at hand. To do a nice job, and do it conveniently, you will want a soldering board, something like this :



SOLDERING BOARD.

It should be about 12x18 inches, and the sides about an inch high. The two staples are for resting your iron, to prevent its burning the wood when not in use, and for holding the bars of solder, when the iron is touched to them. On the right hand, a bar of solder is shown, ready for use. You can never do anything with your solder laid flat on a board. On the left, are two little boxes; one is to hold a wet rag, on which the iron is to be wiped every time you take it from the fire, that we may have a bright clean surface. The other is to hold the powdered rosin; and if you wish to work with satisfaction, I would advise you not to get the rosin on your fingers or clothes. For a brush for applying the rosin, draw some candle wicking into a tin tube. You can do a cleaner job by having the rosin mixed with oil, for all that is left after soldering, may be wiped off with a soft cloth. Our girls use the rosin and oil for making the inside work to extractors. The ability to do smooth nice work, and do it rapidly, comes by practice.

Below, I give you a cut of the soldering iron, the bar of solder, the box of rosin, and the printed directions, such as are sent by mail for $1.00. Common solder is worth about 15c. per lb., but for fine nice work, we use a larger proportion of tin. About equal parts of lead and tin, is the general rule.



SOLDERING IRON, AND IMPLEMENTS.

You will probably get along very well with bright new tin, but when you come to try repairing, or mending old breaks where the metals are old and rusty, much more skill will be required to make a strong job. You will also find that something more than rosin is needed for iron, brass and copper, and for rusty tinware. This was where my soldering implements came in, years ago. I got hold of the idea in this way. One dull day in the winter, a stranger called, asking if we had any tinware we would like repaired, *free of charge*. You may be sure that he and I were friends at once, and we gathered up the tin pans, and set him at work. He took a pretty little camphene lamp out of his pocket, then a bottle of some liquid, next an old file, and some little lumps of solder. A pan had a hole in the bottom; he scraped round the hole with his file, then punched the hole a little larger, so as to raise a slight burr, held the place over the lamp, wet the metal with the liquid and dropped on a bit of solder which melted and filled up the hole in a twinkling; then another, and another, until all were done.

"How much for your work?"

"Nothing."

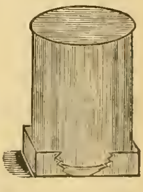
"Nothing? But what *do* you want us to do?"

"Buy that little bottle of soldering fluid."

"For how much?"

"Twenty five cents."

I put down the money very quickly, and he prepared to go. But I was full of questions about the contents of that bottle. I was chemist enough, and Yankee enough, to make him own up that it was nothing but sal ammoniac and chloride of zinc, in solution, before he got out of the gate. In return, he made me promise not to sell any of it inside of our county, under one year. The next week found me in a neighboring county mending tinware, *gratis*, and before Saturday night, I was back with between $10. and $12. clear profit, which was quite a speculation in those days. To make this wonderful soldering fluid which will cause the solder to flow on copper, zinc, iron or brass, you are to get ¼ of a lb. of muriatic acid, of a druggist. Set it in a glass jar or tumbler. out of doors, and slowly drop in pieces of zinc, until it will "eat" no more. Dissolve 2 oz. of sal ammoniac in a glass of water, and add this to the acid and zinc. Strain the liquid into a glass bottle, and keep it out of the way of the children. When you mend the tinware for "nothing," a half oz. bottle of it is sold for 25c. Keep it off your clothes, and especially off your tools, for it rusts every thing badly. When you solder anything with it, carefully wash the article in clean water or rub it off well with a wet cloth. If iron or steel, finish off with some oil on a cloth. If you are careless with such things, you would better let it alone entirely. Always use rosin when you can make it work, as the fluid destroys the tinning on the soldering iron, very rapidly. To show you what you can do with these simple tools, I will give you a sketch of a very ingenious feeder sent by one of our subscribers. They may be made of any size, but the one sent, is made of a piece of tin about 2½x4½. Roll it up and solder the edges, so as to make a little cup. The bottom is just a round piece of tin, laid on and soldered. This cup is to be inverted in a square tin box as shown in the cut. It is soldered to each of the four sides, so as to be about ⅛ of an inch from the bottom, or so that no bee can crawl inside. To fill it, dip it in the syrup while on its side, and raise it out, in the position shown in the cut. The bees can take every drop out but they cannot possibly get daubed. It can be set in the hive at the entrance, or any where you wish; pint feeders, could easily be made for 5c.



CARLIN'S FOUNDATION CUTTER.

SINCE our article of last month, we have made still another improvement in cutting a great number of pieces all alike, such as the starters used for section boxes. The cuts below, will illustrate the matter.

Fig. 1.

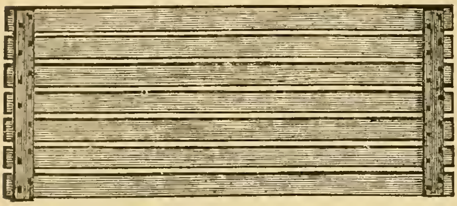
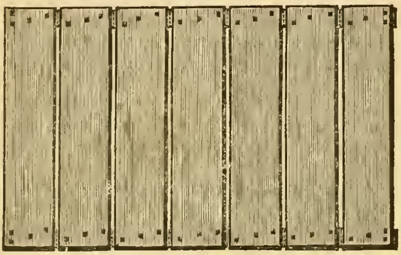


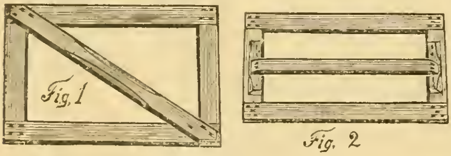
Fig. 2.



MACHINE FOR CUTTING STARTERS FOR SECTION BOXES.

Fig. 1, is composed of seven, ¼ inch strips, 1¾ inches wide by about 20 inches long. The spaces are just wide enough to allow the tin wheel to run between them. Fig. 2, is composed of the same number of boards, but they are 3⅜ wide, by about 16 long. You will observe that this allows one frame to be placed over the other, each fitting in between the cleats of the other. To use the machine, place a sheet of fdn. say 12 by 18, on Fig. 1, and lay Fig. 2 over it. Run the wheel through all the spaces, and then turn the whole machine over. Now run it throu' as before, and your sheet is cut into oblong squares, just such as we put in the 4¼ section boxes when we ship them in complete hives. We should perhaps use pieces somewhat larger, were it not that there would be greater danger of their breaking out with the rough handling they get when the hives are sent by freight. The pieces, as made with the above frames, are 1¾, by 3⅜ inches.

To cut sheets 12 by 18, we have a frame made as follows:



FRAMES FOR CUTTING SHEETS FOR BROOD FRAMES.

The diagonal piece, serves as a brace to keep it true and square, and also for a handle to lift it by. The frame is placed over the sheet so as to cut to the best advantage, and the wheel is run around it. We use a frame instead of a board, because it is lighter to handle, and because a board would be liable to shrink and make it too narrow. A similar frame, Fig. 2, is used to cut the pieces for the L. frames, 8 by 16½.

◆

MOTH WORMS IN SECTION BOXES.

FRIEND Doolittle objects to the advice I gave in regard to having your shipping case beside the hive, and putting the filled sections directly into it as fast as taken from the hives, on the ground that they would speedily become infested with moth worms. I fear he has forgotten that the glass sides of the shipping case are movable; they can be slid up part way, and the honey fumigated with brimstone, almost as readily as if they were scattered all over the honey house in imminent danger of being tumbled over and punched into each other, as they are very apt to be at our house. In employing boys and girls, and men and women too, for that matter, the very worst trouble I have had to contend with—worse than the moth miller in bee-culture by far—has been the disposition to scatter the honey as well as tools, all about, in the most promiscuous manner. It is something like this:

"Have you shipped all the honey you could scrape up, John?"

"Yes every bit."

Remembering former statements of a similar kind, I take a look in the house.

"What is the matter with those sections over in that corner, John?"

"Oh I took them off last night just before I quit, and meant to have taken care of them this morning, but I forgot all about it."

"I saw some stowed away carelessly in a hive in the house apiary; have you got them?"

"Oh no, I forgot about them, when this lot went off."

"Well where did all that broken comb honey come from that I saw covered up in a pan?"

"Oh I forgot to tell you about that; I set it on a barrel, until I could get a shipping case, and it got knocked off; some of it was on top of a hive, and the wind blew the ladder against it, knocked it down and bruised it, so I put it all in together."

There it was, reduced in price from 25c. to perhaps 15, and there it might have stood until the next season, had I not poked round, and found it. If I insist that every section is placed in the case, in regular order, when it is first lifted from the hive, without setting it down any where, and that the cases are then put up in a square pile in the centre of the honey house, when I come home, I shall have a pleasant sight to contemplate, instead of a scene of disorder, with leaking, daubing and robbing.

I know friend D. would say that he would have no hired help, but would do all the work himself; this would be, I think many times, an easy task, but who then would furnish the boys and girls all about us, with something to do? Those that are careful and skillful, usually have plenty to do, but who will care for the careless and heedless ones, and teach them to do differently?

Now to come back to my subject, I will state that none of our crop of honey of last season was brimstoned at all, and I have not seen a single moth worm in the section boxes. Some are near where I am sitting now, and have been all the time in a warm room, but "nary a web," or sign of moth worm. I am sure none have appeared in the honey I have sold, or I should have heard from it. The advice I have given, is that the honey, when taken from the hive, should be placed where it can be carefully watched, and at the first appearance of any worms, should be fumigated, as directed in the A B C. If no signs of the moth appear, I certainly would not take the trouble to fuss with the sulphur fumes. Perhaps York State is worse than our own, in respect to the bee-moth. Our neighbor Dean has just been in, and he says he has never fumigated his honey at all, and has never seen moth worms in the sections, although they have been kept in the neighboring stores from one summer to another. The fact that no pollen is ever found in the small sections, is perhaps one reason why worms are never found in them.

SMOKERS.

I HAVE been reading your article on smokers. A bellows could be made double so that when you press one end the other will open. The blast holes could be near each other and by placing a piece of tin upright between them they would not interfere. In place of springs inside, you could use a rubber band around one end, always taking hold of the other end.

The above would give you two puffs of smoke where the single bellows would give you one.

For a constant blast I think a fan could be constructed that would work with a small "treadle" to be operated on by the thumb while holding it in your hand.

ISAAC JARRETT.

P. S.—I agree with you in regard to patents.

Philadelphia, Pa. March, 6th, 1878.

Thanks, friend J. I have studied hard, both the plans you have mentioned, but nothing as yet, "in my mind's eye," seems as practicable, as the simple single bellows. A fan can be operated without trouble, by the thumb and fingers, but it will take some little time "to get it under way", that is, you cannot start a puff of smoke in their faces in about a quarter of a second, as you could with the bellows. The machinery must operate *instantly*. I think we have improved the bellows, since last month, by allowing the boards to come down flat together, thus driving out every bit of the air. To do this, we round the corners, stretch the leather in the centre, and crease it outwardly before it is put on, and to prevent splitting, we will make the bellows boards of basswood instead of pine. The spring, or springs, are let into one of the boards by ploughing a cavity with a cutter head. This makes a more compact bellows, dispenses entirely with the little strips at the hinge, and is quite a saving of the leather.

Please don't quarrel any more about smokers. I think I can lend a helping hand in the vexed question.

I have been giving my attention to smokers for the past year, and this recent agitation has given me new impetus and I think the idea has come.

I propose to make a smoker with the following points: All metal and very durable, continuous draft, no bellows, no complex gearing, and operated with one hand. Price $1.00.

If I can not send you a smoker with all of these points, I will send you my idea, but I intend soon to send you the smoker. So "look out," and don't quarrel.

J. H. MARTIN.

Hartford, N. Y. March, 6th, '78.

There, friend M., I have been "walking round the central stairway" for over a month on that very thing, and have given it up and taken it up again, more times than a few. The great trouble with all devices is their complexity, and the difficulty of getting a strong positive blast instantly, such as the bellows gives. It just now occurs to me, that this was not intended for print, but never mind friend Martin, if you cannot "fix it" we will all turn in and help you, will we not "boys?"

"AUTOMATIC" SWARMING.

ANOTHER STEP.

I BEGAN the winter with 31 hives of bees on their summer stands. Have sold 2, and to-day, March 8th, have 29 stands in good condition. They are bringing in pollen to-day. As I have stated before, I never had a swarm of bees abscond. Now I will give you (what I think) the reason. I have generally had, in the spring of the year, from 5 to 10 hives in the apiary, full of empty combs that I left on their usual summer stands so that the bees could have access to them at all times. Now don't be too fast and say the moth miller will eat up your combs. No danger in the fore part of the season; the bees will take care of that. Now, some 8 or 10 days before the bees swarm they will go to work in earnest cleaning out the old combs making ready to move in as soon as their sovereign says go. I am always on hand when the bees swarm, in person or by proxy, to hive them immediately, and they always stay, whether put in the hive they have prepared or in some other. You see they have selected their residence in the apiary and in the apiary they are going to stay. I believe bees select a home before they swarm. Friend Martin is right; we can have hives fixed so as to catch absconding swarms. In fixing them, don't omit the comb because comb is an important factor with bees. I'll try the plan this season if I induce some of my own bees to leave the apiary.

A. F. CONAWAY.

Mannington, West Va., March, 8th, '78.

It is a well known fact that bee trees where bees have once built comb, are very sure to be appropriated by new swarms; and hives properly arranged, I think, will be chosen and occupied much in the same way, if we can only study up all the conditions.

GRAPE (CORN, OR POTATO) SUGAR.

GRAPE sugar, so called, has been extensively used by the wine makers in the lake Erie grape growing district for some years, to supply the deficiency in saccharine matter in grapes grown in such a cold climate; some of them, until very recently, importing it in large quantities from Germany. But now it is made here cheaper and of better quality than the imported. Learning through GLEANINGS the existence of the Davenport factory, we immediately ordered some from them and found the quality better than any samples that we had ever seen.

My experience in feeding grape sugar to bees has been the reverse of that reported by friend Shaw, and we must not be hasty in deciding anything positively about it. For the first time since I have kept bees here—ten years, they failed last fall to lay up a good winter supply of honey from golden rod and other wild flowers. Late in the season I found many colonies with a very scanty supply. I united a number of the most deficient with others that had more, and gave all a good supply of grape sugar on top the frames—filling all the old hats I could find with it and inverting them over the cluster, covering well with quilts and cloths. I was in hopes that they would get through, but a number died of *starvation* with plenty of grape sugar left on the frames. All those that had used up their honey died. In all cases they had used some of the grape sugar, while those that had some honey left were alive and had not used any of the grape sugar. Two hives that were entirely out of honey I fed by dissolving grape sugar with about one-fourth honey and filling empty combs with it. They are alive and doing well. I have recently, taking advantage of the mild weather, fed all my remaining hives the same way—giving each from 8 to 15 pounds.

This grape sugar or glucose will no doubt, on account of its low price comparatively, and its peculiar adaptation to the purpose, be extensively used in feeding bees, both for spring stimulating and for wintering, and I have no doubt that it will be used for other purposes not quite as commendable. With glucose, that will not harden, at 5c per lb. and comb fdn. at 50c per lb., we may expect to hear of larger yields of comb honey next season than ever heard of before. For how easy it will be to have this cheap artificial comb filled with cheap artificial honey, of any flavor that you may like, in quantities limited only by the capacity of the bees for carrying it in and sealing it up? Truly we may expect the price of comb honey to come down—if not to 5c per lb., somewhere approximating to it. Most people think that when honey is put into the comb and sealed up by the bees it is positive evidence of its being pure honey from the flowers.

But this is a delusion and I would reluctantly dispel it, for it would be a consolation to know that there is one thing that we can get pure and unadulterated. It has been known by many bee-keepers that bees will store and seal up such sweets as are fed to them, and I have but little doubt that some of our reported great yields of comb honey has been produced in that way, but, for the want of a good cheap feed, which glucose now supplies, it has not been extensively practiced.

In imagination, I already hear you protest that this would be deception—wrong, very wrong, and I agree with you, but I fear that there will be many a weak brother who will not be able to resist the temptation.

I see from GLEANINGS that some wiseacre in England has been analyzing Yankee honey and found it to contain glucose or grape sugar. I wonder if he ever analyzed honey gathered from the flowers? And if he has, did he find no grape sugar in it? The saccharine principle of honey is essentially *grape* sugar as distinguished from *cane* sugar. We had in an early volume of the *A. B. J.*, when under the management of the late Mr. Wagner, a very exhaustive analysis of honey by a German chemist, and glucose or grape sugar was given as one of the prominent constituents of pure honey.*

I made a syrup of two parts grape sugar and one part light brown sugar, which we have been using all winter, and we all like it better than any molasses we can buy, and find it a good substitute for honey. We find it healthy, not producing biliousness like molasses. It does not harden—whether the brown sugar put in it prevents it, or whether it is so good that we don't keep it long enough, I am not able to say. The grape sugar and honey mixed, that I am using to feed bees upon, is better than buckwheat or golden rod honey, or any that I ever ate unless it be clover or basswood.

March 2d, 1878. THADDEUS SMITH.
Pelee Island, Lake Erie, Ontario.

According to the statement given on page 43 of the first volume of the A. B. J., honey is principally grape sugar, and I think the matter has long been recognized; but the glucose that has been used for adulterating honey, is probably so impure, that a chemist could detect the spurious addition readily. A few days ago a sample of honey in glass jars was sent me. The jar contained a very nice piece of comb, in liquid honey. The label bore the name of C. O. Perrine. The whole outfit, looked beautiful, and somewhat to my surprise, as it was sent me to taste, *I* think it tasted beautifully, if I may be allowed the expression. If I had purchased the honey, I am *sure* I should have been well satisfied with it, although the contents of the comb, were different from the liquid portion, and none of it was crystalized. This was by no means a proof that all was not pure honey, but whether it was or not, I should pronounce it both good and wholesome. A pure article of glucose, is excellent food, and we would like it just as well as honey, did it not lack the flavor of the flowers.

While I really think strong basswood honey is improved for table use by being mixed with the finest quality of glucose, I would under no circumstances, approve selling it as honey. If the jars are labeled honey and glucose, and people are willing to buy it under that name, I see no possible harm in it. Perhaps the better way would be to buy the two separately and mix them yourself, according to taste. I think the manufacture of both glucose and grape sugar one of the improved industries of the age, notwithstanding some of the sensational newspaper reports in regard to the matter; but it certainly should come out into broad day light, and not be marked and sold under an assumed name. If carefully freed from all trace of sulphuric acid and other chemicals used in its manufacture, as done by our first class factories, it is, I am sure, just as wholesome as honey. Call things by their right names, and no one will be harmed.

STINGS, GLOVES, AND SMOKERS.

IN reply to your statement on postal card that you furnish rubber gloves "under protest," I will give you a short sketch of my experience in bee-keeping, to justify me in wearing them. I have been keeping bees about five years and have at present 16 colonies of Italians in good condition. Previous to Sept. '76, I used no protection on my hands, although they were, occasionally, nearly double their usual size from the effects of stings; thus showing that the poison effects me more than most others.

In Sept. '76, I purchased my first Italian queens. They arrived late in the evening, by mail, and as I was under the impression that they should be introduced immediately, I took them home, and having no experience, had some difficulty in getting them into their cages. As it was then getting dark, I concluded to put both queens into one hive until next morning: I opened one of the hives (the black queens having been removed in the morning) and put the queens in. As soon as the cages touched the bees they made a "zeep" and in less time than it takes to write it, the cages were black with bees running up the wire which I had in my hand and attached to the cage, also flying in my face and stinging fearfully wherever they came in contact with my face and hands, I however succeeded in getting them closed up in "bee smashing" style, and went to the house wishing I had never seen a bee.

As I felt rather sick, I seated myself and asked my wife to bring in a pitcher of fresh water. By the time she came in I had fainted, my face, as she said, presenting a very unnatural appearance. She gave a few shrieks and also fainted. Our daughter being in the parlor with some lady friends; of course came out "double quick" and you can imagine what a flurry this created. Well, I woke up, as I thought, and you can imagine my surprise when I saw our family physician in the room and some 8 or 10 women in the sitting room and kitchen with ammonia and camphor bottles. I asked the physician what all this meant, and he said I had fainted. I told him I tho't not, that I never fainted before, but had probably fallen asleep, and rubbing my hand over my brow I found drops of perspiration—well, not *quite* as large as a ten cent piece, I concluded he was about right.

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*Such is my recollection of it. As you have the *A. B. J.* bound with index, I would like for you to refer to it—and confirm or correct me—it may be a matter of some importance to know whether honey adulterated with glucose can be detected by analysis.

My wife and daughter both made me promise to get rubber gloves and a good bee veil, or sell the bees; and as I could not think of selling them I was led into making this promise, (as it were) "by the ear."

What say you, keep my promise or not?

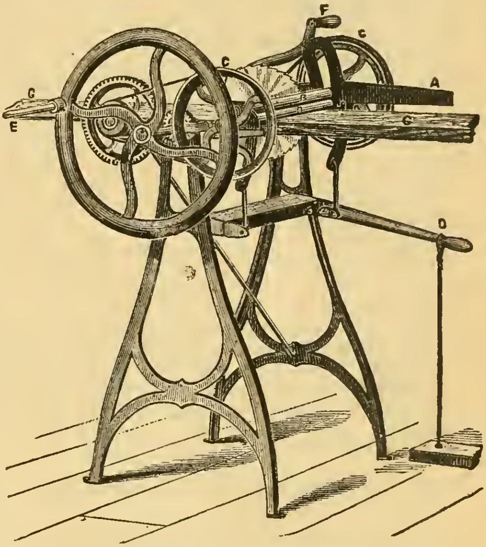
SAMUEL DILLMAN.

New Holland, Pa., March 11th, '78.

Not only you, but others, my friend, do a most foolish thing, in attempting to open a colony of bees under such circumstances, without having your smoker in readiness to give them a puff, the very instant the frames are uncovered. You had them fully aroused by removing their queen, had let them stand with the quilt off very likely, and then just at dusk, the very worst time in the whole 24 hours, you opened the hive with nothing to drive them back, and ventured to lay in the cages, which they would be sure to construe as the most unpardonable insult. The moment you heard that "zeep, zeep," you should have "made" out of sight in double quick, and gone for smoke. No wonder you fainted; the worst part of it is, that we have accounts of similar mishaps, in our letters every few days. If you have no mercy on yourselves, my friends, do please have mercy on the little workers who throw away their poor little lives by dozens in every such encounter. Worse than that, they are so stirred up, and roused to fury, that they will probably be a terror to everybody, for a month afterward. Friend Bingham, if I do not stop, I shall be accused of advertising your smokers, but I am surely not advertising gloves, for I cannot see that a veil or gloves either, are needed at all, for such an occasion. When robbers are troublesome, I think a veil a convenience, but I should never want one for opening a hive when the smoker would enable me to be perfect master of the whole colony. A roll of rags or a smoking chunk of rotten wood, would answer almost as well, if you have no smoker. I thought, when I commenced the article, we should have, finally, one favorable report from gloves in actual use, but it seems we have none yet. If you are careful, and never let the bees get the upper hands, there is hardly a necessity of getting a sting on the hands, once in a month, for bees are almost always in a demoralized condition, when they will sting the naked hands, unless they are pinched. Bear in mind, also, that a colony that has just been deprived of its queen, or that has started queen cells, is very much more disposed to make such furious attacks, as have just been mentioned.

BARNE'S HAND CIRCULAR RIP SAW.

ONE of the above machines was sent us to try, about a month ago, and we have used it daily, first by hand and lately, by power. The machine is all of iron, and not particularly well finished, as in fact it could not well be, at so low a price. But the saw, and the saw mandrel, the most vital points, are excellent. The most beautiful feature of the machine is that the saw, mandrel, and balance wheel, slide all together, on planed ways, something like a lathe; this part of the mchine is made to work so nicely that you can set the saw to cut any width, without turning a single screw or bolt, yet it is made fast where wanted, in less than one second.



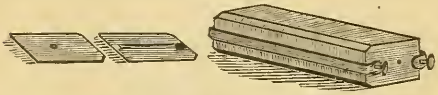
HAND CIRCULAR RIP SAW.

To rip a board, you have only to set your saw where you want it, put the end between the feed rolls, as in a planer, and turn by the crank F. If the board is very hard, or 2 inches or more in thickness, you can get a greater purchase—but with less speed—by turning by the crank E. One thing that astonishes me about this machine is that it matters not whether you turn fast or slowly. It is, in fact, just like having a hand saw in a circular form, so that there is no drawing back to it, but it is all pushing ahead. As the rolls draw the stuff along, it matters not if the board have uneven edges, for the saw will take a straight line through it, just in the direction it is started. The foot power saws are excellent for inch stuff, but cutting stuff as thick as two inches, such as we use for section boxes, by foot power is rather laborious, unless the number of boxes wanted is but few, such as a moderate beekeeper might need for his own use. With the above machine, it is quite an easy task to rip out 2 inch pine, but the large saw—10 inches—leaves the stuff rather too rough, unless it is planed afterward, which it always should be, for really nice work.

To show you how convenient these machines are, I will describe the way we are making packing boxes for fdn. The foot power saw, and hand ripper are placed side by side, both running by power. From our pile of cull lumber, that costs $10. per M. (by the way the principal fault with this cull lumber is the worm holes which do not injure it at all, for packing boxes, crating, and a great many other purposes) we take boards and cut them in two in the middle, that they may be easier handled. They are then put through the hand ripper, and sized to 12⅛ for our largest sheets, or 8⅛, for the L. frame sheets. They are then taken to the cut off table again, and cut off 18⅛, and 16⅝, respectively. They are now taken to a splitting saw, and each board is split into two pieces; or for very light packages, say 3 or 5 lbs., they are cut into three pieces each. After splitting, they are all put through the Lilliputian planer and made smooth, and of an even thickness. They are now turned over to the boys in the wax room, for we have a wax room now, where there is nothing but wax and fdn., and one of the boards is placed under the pile of sheets, which may be 3, 5, 10 or 25 lbs., then when the sheets of paper are put between all the sheets of wax, the boards are pressed down and a piece of the same stuff is put on for ends. The box is finished with three sixteenths stuff. This makes a strong cheap box, and it is always an exact fit, for the quantity of fdn. ordered. The lumber costs but ½c., per square foot—if split in 3 pieces, only ⅓—and if a lot are done at once, the cost of the labor is but a trifle. It is just fun to work with nice machinery, but it is "orful" to try to work with machinery that "aint nice," as we *ought* to know, after all the trials and troubles we have had in figuring all these little items out, one step at a time.

HOW TO MAKE SMOKER BELLOWS-"ES" BY THE QUANTITY.

Get a pile of nice inch basswood boards, cut them in two in the middle, as before, and rip the pieces by the hand ripper, into strips 4 inches wide; since our improvement in bellows, we can get a better blast from a 4 by 5½ pair of boards, than we could before, with boards 5 by 6. After the boards are split up, split them edgewise, and plane them nicely. Now put 50 of the strips in the clamps, just as we did section boxes, and cut off bolts, 5½ inches long. When they are all cut up—by the way our hands said I could not cut off boards 4 inches wide bundled up in that way, but before I got through, I cut off some that were 5 inches wide, for the extra large smokers—you are to run the whole bolts along a beveled platform, in such a way as to take off a corner on one end of the boards, leaving each smoker board something like this.



BOARDS FOR SMOKER BELLOWS.

Now plane and sand paper the bolt, so as to have the edges finished nicely, and bore a ⅜ hole into the end of each bolt, as shown in the cut. This hole should be bored deep enough to go through ¼ of all the boards: if bored in at each end, we have holes in half of all the pieces, just as we want them. In this way, it takes but a short time to get the boards ready for a thousand smokers, for they are never handled singly at all.

BOX HIVE DEPARTMENT.

I ASKED how I could get my surplus honey from my old fashioned hives, in 1 lb. section boxes. In reply you kindly send me GLEANINGS, and say that it gives me the desired information. I am sorry to say it does not. You say "Pry off the top of the hive." Now with my hives having no movable frames, and the combs all fastened to the top of the hive, it will be impossible to carry out this plan.

CHARLES COUTANT.

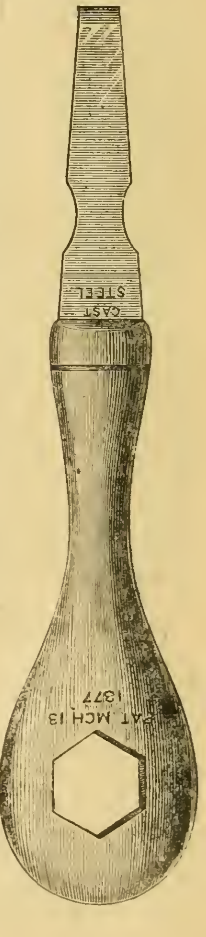
Rifton Glen, N. Y., Feb. 19th, 1878.

You can take the top off your box hive without doing any injury to the comb, by splitting it and taking off a piece at a time, unless it is a new swarm; and I took it for granted that no one would put a *new* swarm into a box hive. If there are no cross sticks to support the combs, perhaps you will have to content yourself by cutting several large holes in the top, but you will get better results by taking the top off entirely. Old and tough combs will be in no danger of breaking down, even if the whole top is taken off.

SCREW DRIVERS.

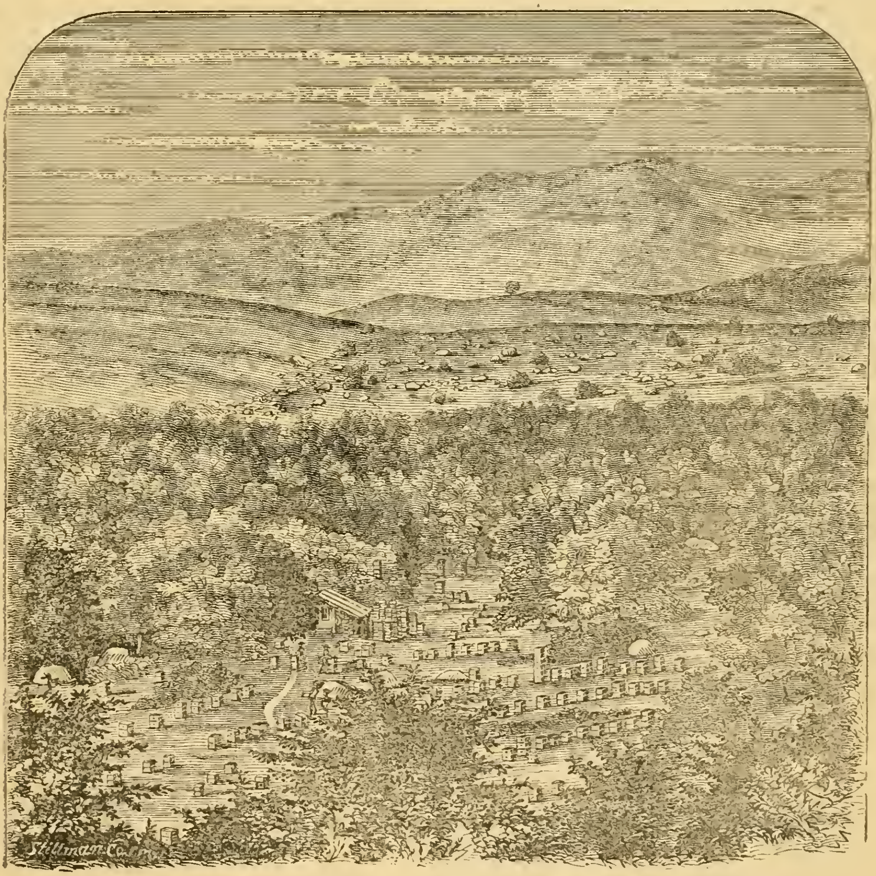
I PRESUME you all know how handy these implements are about the apiary, especially, those of you who use the all wood frames. When I used the closed top Am. frames, I carried a small screw driver in my vest pocket all the time, and it proved handy for a great variety of purposes.

Well, did you ever feel annoyed by having your screw driver come loose, or "wiggle" in the handle? Nothing makes me feel much more impatient, than to have tools that are loose in the handles, and when a tool comes entirely out of the handle, and sticks fast in the work, I always feel ready for a "fight" if I could only find the man who made it so carelessly. Now, this screw driver, the picture of which is right "along side" of what I am writing, can never come out of the handle, for the handle and blade are all one. If you get out of cold chisels, you can take a hammer, drive on the end of your screw driver, and there is nothing that will break; and you can use them for chiseling wood, or anything else, if they are ground sharp. But they are patented! Well I don't care if they are, so long as they only cost 10c., and by the way, just to show you how nice they are, I will send you one, and pay postage too, for just 10c., or a size larger if you wish, for 15c. I almost forgot to say that in the handle, is a wrench, very convenient for many purposes.



A CALIFORNIA BEE RANCHE.

PROBABLY a great many of you, have a curiosity to see the bee ranches of California, we have all heard so much about; and as our friend Archer has sent us a very fair stereoscopic view, I have been at the expense of having it engraved. You can see, at a glance, that he uses something like the Simplicity hive, for he has them piled up two, three and even *six* stories high. What cool shady places the abundant shrubbery affords, and what fun it must be, during swarming time, to have the bees hanging all round on the bushes. In the distance, we see those wonderful hills, that so much is said about, and the fragments of rocks strewn about, seem to indicate the characteristics of the wonderful volcanic country. Friend Archer, we would dearly love to pay you a visit in your cosy retreat, and even if you have no very large houses in view, we think we could stand it, if, as we have heard, it never rains in the summer time. May much wholesome prosperity, and happiness attend you and yours, in your shady bee ranche.


Stillman Co.

ONE OF THE APIARIES OF J. ARCHER, SANTA BARBARA, CALIFORNIA.

I would have preferred something descriptive in regard to the spot, but as we did not get it, the next best thing seems to be a letter on introducing queens, which we give.

I send you an article on introducing queens, and also a view of one of my bee ranches about one mile out of the city. The past year has been a bad one in S. California, for bee keepers as well as others, but the new season is entering very promisingly.

INTRODUCING QUEENS.

As I see so many inquiries in GLEANINGS about introducing queens, I will give you my experience. The first thing is to have the right kind of a hive, next, to have the right cage, and last but not least, to know how to do it. My hive is on the principle of the Langstroth, has frames 17x10 inches, and a loose top and bottom so that a dozen or more may be put together, if needed. Two or more swarms may be put together, so there is no need of haing a queenless stock of bees.

The cage is made of wire cloth, 13 meshes to the inch, and is one by ½ inch, and 3 inches long. The ends are stopped with movable wooden plugs. On one end is soldered a little strip of tin bent in the shape of a hook, allowing the cage to be hung close to the brood in the hive. Always catch the old queen before putting in the new one. Put the new one in at the same time the old one is taken out, and leave it two or three days; then pull the lower plug out of the cage and substitute a piece of comb. The bees will eat her out. If there are any queen cells, cut them out. It is not best to examine the bees too often when a new queen is in. I don't lose one queen of a hundred introducing in this manner

JEFFERSON ARCHER.

Santa Barbara, Cal., Dec. 25th, 1877.

BEES IN COLORADO.

As bees are rare in this section, we obtained a colony from the apiary of Hiram Roop, Carson City, Mich. They arrived May 18th, 1877 in good condition, after their 1500 mile trip. In the latter part of June we started two nuclei from them; one queen escaped over the division board, and killed the other, so but one was a success. The two colonies worked along well, giving a few frames of nice honey. Had no extractor until middle of Sept., but then took out 50 lbs. of good honey; in Sept. queen cells were started and another nuclei formed, but owing to carelessness one swarmed naturally; this made 4 colonies in all, which, after being equalized in both bees and honey, were put up in one large box, divided into 4 compartments with chaff all round each hive, cushion around inside, also a cushion tacked in top of cover of each hive, and no ventilator in top. Consequently the frames got mouldy by Jan. when by leaving top of each hive partially open it nearly all disappeared. Early in the fall the honey all candied in the combs left in the hives. Feb. 28th, bees in excellent condition, the two Sept. swarms have been given some of the frames of the two older hives; no eggs in sight. Bees have flown every second or third week all winter.

Last fall I took one colony in an observatory hive, to the county fair, where they attracted great attention. We have no buckwheat, clover or basswood here, and old bee-keepers from the Eastern States asked "What do you feed these bees on?" If we had only known how to manage, we could have extracted nearly all summer; as it was, got two swarms and 50 lbs. in month of Sept. from wild flowers. Bees are looking up in this section now, we have the only Italians in this part.

The following is proven by this winter's experience: that our extremely *dry* air, as well as light rain fall, *observe*—California has damp air and light rain fall, —is no protection from mould on combs if bees are packed warmly, and no ventilation given.

Candied honey comes from lack of sufficient water in the honey to hold the sugar in solution from too great evaporation, and the remedy is, to melt it up with just enough water to hold it, and not too much. All the honey extracted last fall, candied; by melting it with water it remains fluid and is not injured. I will remark that you sell your Simplicity hive, frames, &c. cheaper that we can buy the lumber, here.

I had your Journal tacked to an observatory hive at the fair, as an advertisement for you. It takes time to work up such things, but the bee question is now started, and in future will, out here, make its own way.

C. A. AMBROOK.

Boulder, Colorado, Feb. 28th, 1878.

BOTANY OF HONEY PLANTS.

I ENCLOSE herewith some blossoms of a tree that we have here that the bees cover when in bloom. If the specimen reaches you in condition to know what it is, I would be very glad to have you name it. It blooms before leaf buds are open.

T. L. KINSEY.

Savannah, Ga., March 12th, 1878.

This is Judas-tree or Red-bud (*Cencis Canadensis,*) This beautiful plant or small tree is found as far north as Michigan. The specimen was pressed and dried and came in good order. The sample was placed between delicate paper and then two pieces of paste-board was tied over the whole to protect the specimen. In all cases where it is possible send leaves as well as flowers and seeds or fruit if they can be found. The best Botanist may spend an hour or a half day in working over a poor specimen or a fragment and still be in doubt as to its name. The plant is closely related to the pea bean and locust

W. J. BEAL.

Agricultural College, Mich.

IF all those to whom John Long is still owing fdn., will send in a full account of the amount still due them, I will fill the order. I do this, because I have reason to think I was a little harsh in my statements in regard to him in the Feb. No., and that he is trying to pay up all old scores.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, OHIO.
TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, APR. 1, 1878.

> Ask, and it shall be given you; seek and ye shall find; knock, and it shall be opened unto you:
> —Matthew, 7, 7:

I AM sure that the above text was intended to apply to bee-keepers as well as the rest of humanity; and if you are a beginner, and feel that you have much to learn, besides going to the books and journals, I would advise going to the bees themselves. and thoroughly studying their habits. Seek and you shall find; knock at the door of Dame Nature's hidden stores of knowledge, and it shall surely be opened unto you.

FROM every state, we are receiving cheerful reports of the unusualy early spring.

◆

IN my mention of friend Perrine's speculation in buying the Wagner patent, last month, I had no intention of saying anything that would hurt his feelings, but used the case, simply by way of illustration of the folly of buying patents. Mr. Perrine did nothing more, perhaps, than any of us would.

◆

MITCHELL really has commenced paying up those he has promised so long, but instead of paying money, he gives them territory in his pretended patent hive. It is true his offers are liberal, for he puts in counties at half price; but even then, some are not satisfied, and insist on the bees, queens or extractors that he promised them when they sent him their money.

◆

EVERYBODY wants the yellowest bees I have, and at the same time they want them from the daughters of imported mothers. It is true we can get a stock occasionly, that will be almost, if not quite, as yellow as any of the home bred ones, but I have been picking out these to fill special orders all along, and now I have nothing but rather dark bees left. I have tried to buy some lighter colored ones of our neighbors, but they too have but very few real yellow bees with daughters of imported mothers. What shall I do to accommodate all? I do not know, unless it is to ask an "awful big price," for such stocks, and as I cannot think them any better, I do not like to do this.

◆

I AM well aware, my friends, that a great many of your requests have been almost unheeded, and that many of your questions remain almost unanswered; but I have done the very best I could. In coming to me as you do (in such a kind and pleasant way too), for advice, I fear you are giving me credit for a great deal more wisdom than I really possess; and I often lament that it is not in my power to give you more help than I do. There is very much in bee culture, yet to be learned, and while we talk over matters and compare experiences, we can guess at the truth, but we very seldom settle any very important point, beyond the possibility of a mistake. Be patient and keep on experimenting. is the best advice I am able to give, many times.

(*Foul Brood. Continued from last month*).

Microscopic investigation has revealed the fact, that foul brood is a species of minute fungus, which when once started growing, increases with astonishing rapidity, and only ceases to extend, when the supply of material that it feeds on gives out, or the temperature is either raised or lowered to such a point that the vegetation is killed. It is on this account that honey from diseased hives is rendered perfectly wholesome for feeding bees, by being scalded, as this is fatal to the seeds of all such microscopic vegetation. As severe freezing produces the same result, we may suppose that hives that have contained foul brood stocks, would be rendered safe, by being exposed to severe winter weather, without bees in them. Great care should be exercised in this respect, however, and perhaps it will be safest, all things considered, to burn up all hives that have ever contained the infection. The name of the microscopic plant, is *Cryptococcus Alveario;* you know we always feel a great deal better, to know just what a thing *is.* I have never possessed a colony having the disease, but pieces of comb containing the diseased brood, have been sent me several times, and I have examined hives in the State of Michigan, that were slightly affected, and feel somewhat acquainted with the disease. I do not know that it now exists in the State of Ohio. unless it is on Kelley's Island, in Lake Erie; it was brought there, by a simple piece of comb, several years ago, and has existed there ever since.

REMEDIES.

I believe the most successful remedy, all things considered, has been in shaking the bees from their combs, putting them into a new hive without combs, and leaving them confined to it until they have consumed every bit of honey in their honey sacks, which will take from 24 to 48 hours. They must, in fact, be almost starved to death. After this, they can be fed and allowed to build comb, and when the queen lays in this new comb, the brood will usually be found healthy and natural. If it should show diseased cells, go through the same operation again, being sure that other bees do not, by any means, get a single taste of the honey from the infected hive, and you will be pretty sure to find them all right.

Much has been said of late years, of salicylic acid; and our German neighbors across the water, who gave us this discovery, with many others, claim to have been perfectly successful, as well as quite a number who have tried it in our own country. The acid is used in solution, and even if quite weak, it seems to have the property of killing the germs of the disease, wherever it touches. To make a sure thing of it, it seems that every diseased cell should have its cap opened, and some of the solution sprayed into it; but quite a number report having succeeded by simply spraying the combs. Mr. Muth, of Cincinnati, O., recommends using borax with the salycilic acid; about ¼ of an oz. of each, is dissolved in a pint of pure soft water. With this, he has been perfectly successful in ridding his apiary of it by a single application. As some of our English correspondents failed, using the most thorough measures with the acid, I am inclined to think there are several phases of the disease, although I have no doubt at all, but that it will yield, like almost everything else, to thorough and faithful treatment. If there are many diseased stocks, it is a saving of time to put all the combs having infected brood in them, into a single large hive, without any queen. All brood that does not hatch out, may be then treated without having far to go, or many hives to look after; and as no more brood is reared, the disease cannot go farther. Our German friends recommend giving a weak solution of the acid as a feed to the bees. This may be a good idea, but as I am rather opposed to doctoring either bees or human beings with drugs, to any great extent, I hope you will pardon me if I am a little incredulous in regard to the propriety of such measures.

For spraying the bees and combs, a spray diffuser, kept by druggists, is a saving of time and labor. Those used with a rubber ball, are handiest.

CAUSE OF THE DISEASE.

Many reasons have been given for the appearance of foul brood. and it has been sometimes claimed that the disease might be generated by the decomposition of considerable quantities of chilled brood, if left in the hive. I can but think this a mistake, and while on the subject I think a great many cases are called foul brood that are nothing like it. The real virulent foul brood, does not usually yield without pretty severe treatment, and it is claimed by some, that the worst type of the disease, can only be eradicated by a total destruction of the hives, combs and bees. Very likely there are several types of the disease, and it may be that the milder forms yield without much trouble; but if we admit it to be a fungoid growth, as the best authorities tell us, I do not know how it can originate without the germs or seed being brought by some means, from some locality where it prevails, like small pox, and other diseases of like nature. The theory of spontaneous generation of either plant or animal life has, for ages, over and over again fallen to the ground, when the experiments were made with sufficient care; therefore I think we may feel sure it will never come into our vicinity, unless it is brought in. Some parts of York State, Michigan, Wisconsin and some other states, have been affected with it so many years, that it is liable to break out at almost any time, and it may be a hard matter many times to decide whence it comes; but if we are prompt, destroying or cleansing all diseased cells the very moment we discover them, I think we need have little fear or trouble. It is quite likely that the evils of this malady, like the moth troubles, are greatly exaggerated by careless and shiftless bee-keepers. Box hive bee-keepers, even now, will tell the most doleful stories of how the moth has ruined all their hopes and apiaries, while one who is at home with bees, knows that the owner is much more at fault, than the poor much abused miller.

There is so much "clamoring" from beginners for something about transferring, that I shall have to beg pardon of the rest of you, for repeating the directions just this once; then it will go into the A B C, and that will end it. It seems almost impossible to take up this department in its alphabetical order, as I would prefer to do.

TRANSFERRING. I firmly believe *every one* of our readers can do their own transferring, and do it nicely, if they will only make up their minds that they *will* succeed. If you are awkward and inexperienced, it will take you longer, that is all.

It has so often been said that the best time is during the period of fruit blossoms, that it seems almost needless to repeat it. Be sure that you have cleared away all rubbish from about your box hive or gum, for a space of at least 6 feet all round. We would decidedly prefer to have the hive stand directly on the ground with all rough and uneven places filled up with sawdust nicely stamped down. Make it so clean and tidy that you can find a needle if you should drop it, and be sure you leave no cracks or crevices in which the queen or bees may hide or crawl. Make all these arrangements several days beforehand if possible, so that the bees may be well acquainted with all the surroundings and be full at work; remember we wish to choose a time when as many bees as possible are out at work, for they will then be nicely out of the way. About 10 o'clock A. M. will probably be the best time if it is a warm, still day. Get all your appliances in readiness, everything you can think of that you may need, and some other things too, perhaps. You will want a fine-toothed saw, a hammer, a chisel to cut nails in the old hive, tacks, and thin strips of pine, unless you have the transferring clasps, a large board to lay the combs upon, (the cover to a Simplicity hive does "tip top,") an old table cloth or sheet folded up to lay under the combs to prevent bumping the heads of the unhatched brood too severely, a honey knife or a couple of them, (if you have none get a couple of of long thin-bladed bread or butcher knives), and lastly a basin of water and a towel to keep everything washed up clean. Now, as I have said before, this is really, a great part of it, women's work, and if you cannot persuade your wife or sister, or some good friend among the sex to help, you are not fit to be a bee-keeper. In saying this we take it for granted that women, the world over, are ready and willing to assist in any useful work, if they are treated as fellow beings and equals. The operation of transferring will afford you an excellent opportunity to show your assistant many of the wonders of the bee-hive, and in the *role* of teacher, you may discover that you are stimulating yourself to a degree of skill that you would not be likely to attain otherwise.

A bellows smoker will be very handy, but if you have not one, make a smoke of some bits of rotten wood in a pan; blow a little smoke in at the entrance of the hive, but do not get the sawdust on fire. Tip the old hive over backward, and blow in a little more smoke to drive the bees down among the combs, let it stand there, and place the new hive so that the entrance is exactly in the place of the old one; put a large newspaper in front of the entrance on the ground, and let one edge lie under the entrance to the new hive. The returning bees, laden with pollen and honey, are now alighting and going into the hive and out again in dismay at finding it empty. We now want to get one comb in for them, to let them know that it is their old home. Move the old hive back a little farther so as to get all round it, and give them a little more smoke whenever they seem disposed to be obstreperous; and now comes the trial of skill and ingenuity. The problem is, to get those crooked irregular combs out of that old hive, and then to fix them neatly in the movable frames.

Your own good sense will have to dictate much in this matter. Saw off the cross sticks, if such there be, and with your thin knife cut the combs loose from one side; cut off the nails and pry off this side, but don't get the honey running if you can help it. We have as yet said nothing about bee veils, and though we keep them to sell, I really do not think you need one, *unless* you are so careless as to get the honey running and start robbers. When the side is off, you can probably get one comb out. Lay it on the folded table-cloth, take out the comb guide, lay the frame on it, and let your feminine friend cut it so as to require that the frame be sprung slightly to go over it. With the clasps she can fasten the combs in as fast as you can cut them out; if sticks and tacks, strings or rubbers be used it will take some longer. When the frame is to be lifted into a horizontal position, the board, cloth and all is to be raised with it. With the wash basin and towel, keep the honey neatly wiped up. If robbers begin to annoy cover both hives with a cloth while you are fitting the combs, and keep the brood in your new frames in a compact cluster, as it was in the old hive, or some of it may get chilled. When you get near the central combs, you will probably lift out large clusters of bees with the comb; these are to be shaken and brushed off on the newspaper; if they do not seem disposed to crawl into the hive take hold of the edge of the paper and shake them up toward the entrance; they will soon go in. A paper is better than a cloth, for they cannot stick fast to it. If you carefully fixed things before commencing, so there was no crack or crevice into which a bee could crawl, except into the entrance of the new hive, and if you have been careful—as you always should be—to avoid setting your (clumsy?) feet on a bee, you certainly have not killed the queen, and she is in one hive or the other. To be sure she is in the new hive, shake all before the entrance when you are done, and see that *every* bee goes into the hive. Save out the drone comb, and fix it all in a frame or frames by itself. It will do well for surplus honey, but we don't want it in the brood chamber. Utensils and bits of comb that have much honey daubed on them may be put in the upper stor for the bees to clean up, but if the weather is cool, keep the quilt down over them closely for a day or two. We would look them over carefully every day or two, and as fast as they get the combs fastened, remove the clasps or other fastenings and bend the combs into place.

Each operation is very simple and easy in itself, if you go about it at the proper time and in the right way. Bear in mind that the bees, from first to last, are to be kept constantly in subjection, by use of the smoke, and that you must never let them get the faintest idea that, by any possibility, can *they* become master. Send them back among the combs as often as they poke their heads out, until they are perfectly subdued, and hang in quiet clusters, like bees at swarming time.

It makes no difference which side up the brood combs are, in transferring; turn them horizontally from their original position, or completely upside down, as you find most convenient. Store comb in which the cells are built at an angle, would perhaps better be as it stood originally; but if you do not get it so, it makes very little difference; the bees have a way of fixing all such matters very quickly.

Several enquire if we would advise them to transfer bees in the months of June, July, Aug., etc. We really do not see how we can answer such a question, not knowing the persons. Among our neighbors, there are those who would work so carefully that they would be almost sure to succeed; and, again there are others who would be almost sure to fail. We are inclined to think those who make these enquiries, would be quite apt to fail, for the careful ones would go to work and do it at any season if they were sufficiently anxious to have it done.

FRUIT BLOSSOMS. Although the honey obtained from this source is neither in quality nor quantity, equal to that from clover, basswood and some other sources, yet coming as it does, just when the bees have, usually, nearly exhausted their old stores, it is a crop of great moment to the apiarist. I do not know of a prettier sight to the bee-keeper, than the yellow banded Italians at work on fruit blossoms, nor a pleasanter sound than their merry hum of rejoicing. One would suppose the honey from early choice cherry trees, must be unusually fine, but I believe those who have tried it, all agree that it is anything but delicious. It seems to have a strong rank taste, much resembling the taste noticeable in chewing cherry tree bark, or the buds.

The honey from apple bloom is much the same. It is excellent for starting brood rearing, but it is of little or no value for table use. I once extracted about 10 lbs. of honey from fruit blossoms, by putting two fair colonies together early in the spring, thus giving about the working force of a colony in June.

Although it will not be advisable to try to get surplus honey from the fruit bloom, it is sometimes an excellent idea to put a frame or two of sections in the lower story, that they may get the fdn. nicely built out ready for the clover season. If they should store some of the dark honey in the sections, it will all be removed, in all probability, during the interval between the fruit bloom and clover.

DO BEES INJURE THE FRUIT, BY TAKING THE HONEY FROM THE BLOSSOMS.

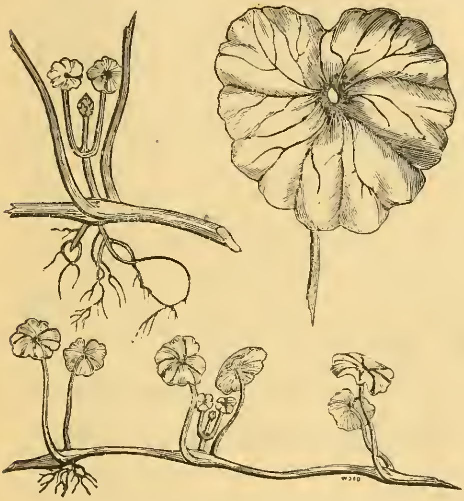
This is an idea that has been advanced over and over again, and will probably be many times more, by those who take only a casual view. If I am not mistaken, the matter was carried so far in a town in Mass., that an ordinance was passed obliging a beekeeper to remove his bees to another locality. After a year or two had passed, the fruit growers decided that they would rather have the bees brought back, because so little fruit was set on the trees, in proportion to the mount of blossoms appearing. As it was a fruit growing district, it was a matter of considerable moment, and the bees were brought back. Of course, with the bees, came fruit in abundance, for many kinds of fruit absolutely depend on the agency of bees in fertilizing the flowers, to enable them to produce fruit at all. It seems that the small drop of honey which nature has placed in the flower, is for the express purpose of attracting bees and other insects, that the blossoms may be surely and properly fertilized. It has been stated that unless we have a few hours of sunshine when early cherries are in bloom, we shall have no cherries at all; and occasionally we have a season when cold rain storms so prevent the bees from getting out, that not a cherry is produced.

It is well worth while, I believe, for an apiarist to locate near extensive orchards, even if he should not think of planting fruit trees, with the especial end in view, of having his bees benefitted thereby. A large yield of honey from fruit bloom is pretty sure to lay the foundation of a good honey season.

The very best time to transfer bees, is when the honey just begins to come in from this source, for they are then all busy and happy, and but little honey is in the way to run down and hinder the work. I have looked at populous colonies during fruit bloom, that had not a dozen cells full of honey in the hive, in the morning, but by night the hive would seem very well supplied; the next day would show the same aspect of affairs, indicating how rapidly they consume stores, when rearing brood largely. Should a stormy day intervene, stocks in this condition will be injured very much, if they do not starve, by being obliged to put the unsealed brood on such short allowance. A friend once came to me, in May, to have me come and take a look at his bees; he said they were sick. It was a box hive, and as I turned it over, I agreed with him that they *were* sick, and no mistake. I called for a bowl of sugar, and after stirring in some water, I sprinkled it all over the bees and combs. In less than an hour, they were all perfectly well, and he paid quite a tribute to my skill in compounding medicines for sick bees. My friends, be sure that your bees do not get "*sick*" during fruit blossoming time, nor afterward either.

GILL-OVER-THE-GROUND. (*Nepata Glechoma*). Some 40 or 50 years ago, when this county was mostly woods, my father and mother commenced life on a little farm near where I am now living. Woman like, my mother wanted some flowers around the log house that they called home, and going to a neighbor's a few miles away, she took up various roots and plants. It was just about the time, or a little before fruit trees bloom, and amid the shrubbery, she found a little blue flower, growing on a vine. As blue has always been my favorite color, I can readily excuse her for wanting to take home a root of this humble looking little vine. The vine grew and throve "mightily." So much so, that when my father moved back to the old farm after a dozen years absence, he found my mother's blue flower all over, every where, and giving fair promise of being able to choke all the grass and almost everything else out entirely. When "we boys," commenced trying to make a garden, we scolded so about this "pesky weed" that my father said it must be thoroughly "dug out," before it went any farther. After some feeble and ineffectual attempts at getting it out, he finally offered a younger brother a fine colt, if he would rid the farm of the weed. I do not know how hard he tried, but I believe he never got the colt.

It transpired in later years, that this plant yielded a great deal of honey, and in some localities favorable to its growth, such as the beds of streams where there is plenty of rich vegetable mould, it has furnished so much honey that it has been extracted in considerable quantities. Coming in as it does, between fruit blossoms and clover, I think it might well be given a place on our honey farm, even if it does hold so tenaciously to the soil when it once gets a start. That you all may recognize it I give you below a cut of roots, branches and leaves. Our engraver will show you a flower, as soon as it comes into bloom.



GILL-OVER-THE-GROUND.

The honey is rather dark, and I believe a little strong but if it is allowed to become perfectly ripened, I think it will pass very well, but perhaps the greatest benefit to be derived from it, will be to keep the bees uninteruptedly rearing brood, right along, until clover and locusts begin to furnish a supply.

This plant is a near relative of the catnip, which it closely resembles in the shape of the leaf. Both were originally from Nepata, in Germany, hence the Latin names, *Nepata Cataria*, and *Nepata Glechoma*. I presume it would be an easy matter to raise this plant from the seed, but I would hesitate some in sending out such seed. It spreads much more rapidly than the catnip, because it catches in the soil like strawberry plants, from the little rootlets shown in the engraving.

GOLDEN ROD. (*Solidago*). This, in some localiaties, furnishes the bulk of the great yield of fall honey. It grows almost all over the U. S., and there are so many different varieties that it would be almost out of the question to try to give you a picture of it at all; the botany describes 53 different varieties, and it is common to find a half dozen growing within a few rods. Its name describes it, so that almost any one should be able to identify it. If you see autumn flowers as yellow as gold, growing on the top of tall rods, you may be pretty sure they belong to this family. The flowers are very small, but grow in great masses, sometimes in long racimes, and again in dense bunches. The general characteristics are such that after a little practice, you can readily identify any one of the family.

Bees are almost incessantly humming over the flowers in some localities, in others, they seem to pass them entirely unnoticed, and I have passed it in localities where beekeepers say they have never seen a bee on it at all. Bees are seen on it, occasionally, in our locality, but I do not think they get enough honey from it in ordinary seasons, to make it perceptible in the hive.

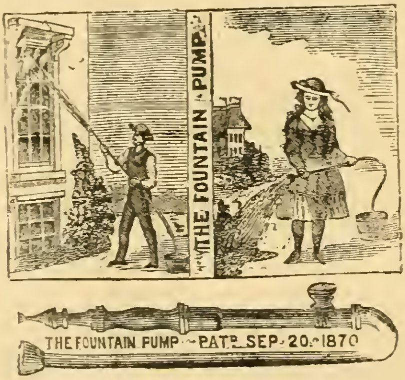
The honey is usually very thick, and of a rich golden color, much like the blossoms. When first gathered, it has, like most other fall flowers, a rather rank weedy smell and taste, but after it has throughly ripened, it is rich and pleasant to the taste. On getting the first taste of Golden Rod honey, one might think they would never like any other, but like many other kinds, one soon tires of the peculiar aromatic flavor, and goes back to the clover honey as the great universal staple to be used with bread and butter. A patch of Golden Rod might have a place on our honey farm, and perhaps with cultivation it might do better, and give a surer crop in all localities; but as it is only a common weed on our farms, I would hardly favor a general distribution of the seed.

FIRE! FIRE! FIRE!

A FEW days ago I arose about 5 o'clock, as usual, and went up street to see how the "night hands" had got along. Just about daylight, I was told the honey house was on fire and you may be sure that never did "bees swarming" call forth any livelier time than I made that morning down to the apiary. My boots are rather large and awkward,—I expect going through the mud 10 miles every Sunday, has stretched them somewhat—and had it not been too early in the morning for dogs, chickens, or small children, some of them would surely have been hurt, or so badly frightened that they would not have forgotten it in all day. When I came in sight, the volumes of smoke pouring forth would have made me redouble my efforts, had not the unlucky boots been already going at a rate of speed that threatened to demolish sidewalks, fences, shade trees and every thing else. Pretty soon I caught sight of my wife whirling the cistern pump like a buzz saw, and all the neighbors carrying water like mad, and then I went slower, for I knew that all was being done that could be. I do not know where the new baby was just then, but I think she must have been helping to put out the fire somewhere. I grasped a wash basin and tried to throw water on the roof just where the flames were bursting forth through the shingles, but I only threw water all over myself and down into those same boots, and "never a bit," could I get on the fire, which seemed only to burn the brighter for my frantic efforts.

The wind was blowing strong, right towards the house apiary, and kind friends and neighbors plead to be allowed to move the bees. Although I felt for a few minutes that my whole 90 hives were hardly worth 5c each, I thought it best to keep the bees undisturbed, for if they got out among the crowd, nothing but the fire engine which was already near by, could do a thing for them. At the critical moment, the hook and ladder boys came on to the ground, and with some little hand engines they threw the jets of water just where it was needed, and soon extinguished the fire, scarcely injuring a hive or a thing in the house. The fire had originated from a stovepipe, and burned into the sawdust over head, where it had slowly smouldered nearly 24 hours before breaking out. The morning before, the stove had been used for making bee-candy.

Now about the hand engines, or fountain pumps; you may be sure, after my unhappy efforts with the wash basin, I concluded to have a fountain pump, or rather several of them, and this brings me to the moral of the story. Had such an implement been in our household, we could have subdued the fire at once, without alarming the fire companies, or anybody else.


THE FOUNTAIN PUMP
THE FOUNTAIN PUMP ~ PATD SEP. 20. 1870

One of the Whitman fountain pumps is now by my side; the workmanship (it is all of brass) is beautiful, and the price—I can furnish them to you for $8.50—I consider very reasonable, indeed, for so pretty and effective an implement. A child can throw a stream of water up to a third story window, and the jet can be changed from a single stream to a spray for watering plants, almost in an instant. The inventor has the rare good sense to have all the pieces attached to the implement, so that none can get lost.

Now the principal point, after all, is that the machine is the very best thing in the world to make bees "come down," when they are swarming. With the spray diffuser, we can wet their wings, so that they must come down whether or no, and—just listen to what some of our friends say.

As a remedy to prevent bees going to the woods we have never found anything half as useful as the Whitman Fountain Pump. Have a barrel of water in your bee yard, and a couple of pails handy. Put the spraying attachment on the pump, and as soon as the bees are in the air, you can throw a heavy fine spray among them, which will force them to come down very quickly.

If, by any means, you should be unfortunate in dislodging the bees, or making them angry while hiving, and they should desire to leave, you can quickly become master by using the pump.—*Bee Keeper's Magazine, Feb.* 1877.

Last summer I used the Fountain Pump. I can conscientiously say that to me it was worth, in one season, more than it cost, for controlling swarms of bees while in the air. J. H. Nellis.

Canajoharie, N. Y., Jan. 29th, 1877.

Mr. Nellis said while here, that he liked them still better, after using them three seasons. You can buy them of him, the *Magazine* folks, or of us, as you choose.

Directions.—Tie the hose round your arm, letting the end drop in a pail of water hanging on the same arm, and "go for" your swarm. If you can get within 2 or 3 rods of them, you have "got 'em."

Notes and Queries.

Again this season I experience trouble with the two frame nuclei, while the three and four frames work well. Therefore, if it is no trouble, please change the word *two*, by inserting *three* frame nucleus, &c., in my advertisement, as I have just taken all my two framed ones apart and made them into three and four. Paul L. Viallon.

Bayou Goula, La., March 16th, '78.

[I have no doubt of it friend V., and I think the reason is, that it makes too "thin" a cluster, for the bees to keep up the needed animal heat to advantage on two combs. While I think of it, I would say to our readers, that Mr. Viallon is one of our most prompt and reliable Southern bee-keepers, and that he fears we can not take all the dollar queens he can raise. Let us show him that America is a "big country," and that it will take a "heap" to keep us *all* supplied.]

FOUL BROOD.

My loss from foul brood has been over 100 splendid stocks; but I have learned to manage it so that I am not troubled with it any more. Sidney Drake.

Birmingham, Mich., March 18th, '78.

Eighty-one colonies out of 90 are defunct. I am only waiting to see if the remaining 9 expire, and then I will give you a report for Gleanings.

S. J. Sawyer, Fort Atkinson, Wis., Mar., 6th, '78.

SHIPPING BEES.

As bees must go by express, we want the package as light as possible and with no projecting angles or corners to get bumped and knocked off in transit. The Simplicity hive, one story, seems to be just about the thing; for it is light, strong, cheap and affords a ready means of giving the most perfect ventilation in very warm weather, by putting wire cloth over both top and bottom. When bees are ordered from considerable distances, I would recommend sending the bees and combs in a Simplicity by express, and the chaff hive by freight, for a complete chaff hive all furnished and packed weighs nearly 100 lbs. To prepare a Simplicity hive for shipping, you are to put the sheet of enameled cloth into the cover with the cushion and put all under the bottom board. The cover is to be turned over in this position so that the quilt and sheet will be kept safe and clean, between it and the bottom board. Now cut some sticks just right to push in between the frames, wedging the last one so closely that the whole is firm and solid. When the bees are all in, on their combs, lay on your wire cloth frame, over the top of the hive in place of the cover. These wire cloth frames we make of pieces culled from the cover stuff, and they fit over the hive, just as the cover does. We use the cheap painted wire cloth for shipping bees. As the express men can see the bees plainly through the wire gauze, they generally handle the whole carefully.

A frame of lath and strips of inch stuff, is placed under the whole, and strips of lath nailed from this to the wire cloth frame. This makes all strong and firm, without marring the hive by unsightly nail holes. We use two strips of lath at each corner, nailing the edge of one into the other; this protects the corner of the hive from injury, and makes it very strong. When our customer gets his bees, he is expected to carry the hive at once to where it is to stand. Pry off the lath with a screw driver, and lay the quilt and cover over the wire cloth, then push the hive forward on the bottom board, until the bees can get out. *I* would by all means, have a bushel or two of sawdust stamped down around the entrance, to make it look home-like. After they have gone out and in around their doorway until they know where the entrance is, you can take off the top and take out the combs. Use your smoker, if you are unaccustomed to bees, but do not smoke the poor little fellows more than is neccessary; they will be friendly and peaceable just as soon as they get a fair understanding of matters. You can take out the sticks, at once, or leave them awhile, as you choose: but be sure you let the bees out for a fly as soon as you get them. One of our friends carried his bees into the house to keep them warm, thinking Italians must be petted like canary birds, instead of setting them out in the yard with his common bees. After a few weeks, he wrote, inquiring why they died under such treatment. Do not keep bees confined an hour longer than neccessary, but after you have once let them out, do not move them again, unless you move them a mile or more, or many will be lost.

THE next A B C paper, will be hive making.

BOTH Jan. and Feb., No's are now gone. We will pay 10c. for either, and sell them for 15c.

WE can furnish the Hand Ripper illustrated on another page, for $50. With this machine you can rip the siding for chaff hives by hand without any trouble, and it is the only way I know of, in which they can be made profitably by hand.

IF the person who invented the tin feeder shown in this number, will send me his name, that I may hunt up his letter, I will pay him $10. for the privilege of making the same, and we will call it by his name.

SOME of our friends have lost money enough to pay for GLEANINGS many years, by ordering from old price lists, or by not being posted in regard to recent improvements. I am very sorry, but I do not know how I can help you, if you *will not* keep up with the times

THE idea advanced in another column, that honey candies because it is too thick, I think a mistake. Some very thick honey never candies at all, and some of the thinnest linden honey that we ever extracted, was quickest to candy. I think unripened honey, especially given to candying.

THERE is no advantage, as a general thing, in prepaying freight or express on goods, and many times we have, by prepaying, increased the charges. We are now making arrangements to have an agreement made and stamped on every package, that the charges shall not exceed a specified sum. This charge can then be paid at the destination, and save all dissatisfaction or misunderstanding.

NINE-TENTHS of all the hives ordered, are now for L. frames, and as we are selling hives by the thousand, it is pretty fair to presume that all odd sized frames will soon be at a discount. We cannot, with our present rush of business, make odd sized hives nor frames, unless at least 100 are ordered at a time, nor odd sized section boxes, unless 500 are taken. The changing of machinery makes much delay, and it is quite difficult to make the exact quantity wanted, without much waste of material.

As we are not allowed to write on queen cages, more than to say from whom, I would suggest that we have the following signs. X for a black queen; x x for a hybrid; x x x for a dollar queen; x x x x for a tested queen and x x x x x for an imported queen. If she produces very yellow queens and workers, you might put on some more x's. Now bear in mind that a great part of the queens you send me, will be tested in my own apiary, so I shall be able to test both you and your queens, at the same time.

HOW TO FEED GRAPE SUGAR. If you must have the exact proportions, I would say 1 lb. of sugar to a pint of water. If you make it thicker, the bees will get so "logy," with their heavy load, that they will fall about in the grass, before they can go home. If in the proportion named, they will go right to the hive, and the syrup will not be very likely to candy in the feeders. The wood feeders will do very well, or the pail arrangement mentioned last month, but as both these are liable to get the bees daubed, I just now rather prefer the tin feeder described this month. To fill it, dip it all over in a pail of syrup while held in a horizontal position, turn it upright, and then lift it out. Set it any where you wish, and the bees will get the feed to your perfect satisfaction. This syrup may be fed safely in the open air, for they do not care enough for it to fight over it much. They will not trouble it when they can gather honey, therefore you need be in no fear of its getting into the section boxes, or in with your extracted honey.

PERRINE'S FLOATING APIARY.

THE FIRST FLOATING APIARY ON THE AMERICAN CONTINENT.

I PROMISED to give you some description of my bee boats, &c., &c., and will now do so, but pardon me if it is not full enough, as I have only a few hours each evening to attend to my correspondence, having to look to my apiarian interests through the day.

I bought two gunwale barges, each about 110x24 ft. and decked them over 7 ft. from each side inwardly leaving 10 ft. open space, deck about 5 ft. from bottom, roof over open space about 7 ft. high forming a cabin, thus making roof 2 ft. above deck. I first have a space at each side of boat, on deck, of 2 ft. for outer gallery, to pass before the bee hives, then 2 ft. space for the hives, then 3 ft. space behind the hives for inner gallery; this takes up the 7 ft. There are 6 tiers of bee hives, one above the other. I have an upper outer and inner gallery 7 ft. above the deck, from which we are to work the upper 3 tiers of hives.

This describes the *outer* tiers of hives; the inner, start from the top of the cabin roof and are 5 tiers high. The back end of the hives are flush with the cabin roof, or say the eaves, so that the inner gallery of 3 ft., spoken of, is between the backs of the outer and inner hives allowing both tiers to be worked conveniently between the fronts of the inner tiers of hives. There is 6 ft. space all the way up to the top of the boat, 12½ ft. high, and this space is not roofed, allowing the bees to fly freely up and down through this space to and from their hives. The outer tiers of hives allow of free horizontal flight of bees. There is a roof 14 ft. high at the eaves, over the whole boat, except the 6 ft. space running through the middle. The arrangement at the ends is the same as at sides with trifling variation.

The whole structure is supported by over 200 stanchions running from the bottom of boat to roof firmly secured by spikes, bolts and braces through stringer and carling. The hives are placed, as it were, on shelves firmly secured and easily removed.

The hives are not perfectly shielded from sun and rain on the outside tiers, but rain will not hurt them and the sun can only strike the fronts; and as I have nailed on upper half of the space of the porticoes wire cloth and door to confine the bees below this, which when opened covers over the wire cloth and shields the front from the rays of sun, I have little to fear from the sun.

Each boat will hold over 900 swarms under cover, and if I choose, I can put a few on the roof, making it over 1000.

I have now between 400 and 500, I will buy a few hundred swarms here and a little further up the river, which in all, with my own swarms, will give me by the middle of April—the time I propose to start up the river—about 1200 hives, or 600 on each boat. I expect to have, at least, fifty per cent increase going up the river. I am not counting on too big things.

I hope to reach St. Louis early in June, and will continue my trip, arriving at St. Paul, Minn., about the last of July.

Bees are now and have been working on the different varieties of willow, so abundant in swamps in the South, ever since early in February, and will continue to do so, with some other tree bloom for a month yet, say 8 to 10 weeks on willow, and working hard every day they can get to work.

Bees are all in good order in my apiary and have just begun to swarm. Of course some are stronger than others, the strongest have gathered within the past 10 or 12 days, 30 to 50 lbs. of honey, some in sections and some in large frames for extracting, and this before swarming time, with hives *not full of bees.* Four to 6 lbs. of honey per day is pretty good I think, and such beautiful honey too, not strictly white nor of a high boquet, but a smooth pleasant honey somewhat like peach bloom honey. Now and then some one objects to a slightly bitter after taste that is noticed when the honey is eaten by itself, but at table it is not noticed. It *wears* better than any honey I ever ate or gave to friends.

I expect to work on willow for the first 600 or 800 miles, and perhaps get some white clover for a short time about the last of May or first of June, and to wait for basswood which I expect to follow from below Cairo to St. Paul, nearly 1000 miles and nearly two months. Those who know what basswood yields, can perhaps imagine my expectations as to quantity to be gathered by my then 2000 hives of bees.

My intention is to return from St. Paul to some point above St. Louis and stay during Aug. and Sept., returning south in October, when I think I have a reasonable expectation of having 3000 to 4000 hives of bees, probably more than were ever managed by one person.

I will have a good tow boat of my own so as to control its movements. I will do my moving at night, stopping every day, probably, as it would not do to lose a day of work.

In my experiments, labor and purchases, I have spent money liberally—nearly $15.000 since I first came down here—and if I succeed in demonstrating the practicability of a floating apiary will you feel badly because I have made some money in the honey business in years past so as to be able to take a little money from my business to do this? *But* suppose I fail, will you say "foolish man, I could have told him so?" or will you give me credit for the 18 months of unremitting toil of brain and muscle, and try to encourage me to try another season to make a success of it?

Towing boat by steam—up stream, is expensive; one party proposes to tow me up to St. Paul and back to New Orleans for $6000.00 but I can do it much cheaper owning a steam boat myself, perhaps for half that sum.

There will be a crew of 15 or 16, or perhaps 20 persons on the fleet, and as I expect to accompany the enterprise, "Commodore Perrine" as some of my friends here insist on calling me, will have his hands full.

We are extracting from nearly 100 hives, and shall ship to Chicago, in a few days, between 2 and 3 tons of extracted and section box honey, and soon afterward, a shipment to Europe where my customers are awaiting new honey with their mouths open.

Mr. Fred Grabbe formerly of Kansas and Illinois, has been with me over a year, and has the immediate management of the bees, a man of large experience, practical, energetic and an untiring worker.

I can not close without a word about the pleasant winters here—no snow—a few frosts, a little show of ice once or twice during the season, not too much rain, and in February flowers: and *now* all in full bloom, and to crown all, the air is now full of condensed orange bloom; some 20 trees about my house fill all space with their fragrance.

Well, I have written more than I thought I would. If your readers don't understand my description, or have curiosity to see, I hope to see all who will take the pains to come to see us any where along the river. Will try to keep them posted where to find the boats as we go along. C. O. Perrine.

New Orleans, La., March 20th, 1878.

Many thanks, friend P., but have you not "mixed" something somewhere, when you intimate that I might feel badly if you should succeed, and say, "I told you so," if you should fail? I fear you did not read what I said about floating apiaries a couple of years ago, when I asked who would first volunteer the money for the experiment. If anybody attempts to say "I told you so," Gleanings will be the very first one to square off for a fight—a friendly one—for whether you make a success of it or not, I am sure some one will. We certainly are as smart as the ancient Egyptians on bees, even if we never did build any pryamids, and now friend Perrine I want you to get just the very best photo of your floating apiary, that ever you can, and we will get the best engraver in the country to engrave it for May Gleanings. I do not believe in saying very much about what great things we are *going* to do, for it is much better to do them first and then tell about it; but I hope we may both be excused a little this time.

* * *

I will pay 15c for black queens and sell them for 25c until further notice. Purity (?) and safe arrival guaranteed. These will be nice to practice with.

Heads of Grain,

From Different Fields.

TAKING BEES OUT OF THEIR WINTER REPOSITORIES.

On the 20th. of this month, it being very warm, I thought best to set the bees out for a fly. I had 3 colonies in the cellar, which I set out first, and then started for neighbor Rice's, where I had 16 more in his bee house. I set them out as quickly as possible, and soon the air was nearly black with bees. I had a young Italian queen in one of the hives, hatched late in the season, and I thought to show her to Mr. Rice; but on opening the hive I found about as many black bees as yellow ones, and saw at once what was wrong; a wad of black bees were clinging to the queen and trying to kill her. I got her away from them and closed the hive so that but a single bee could get in at a time. They soon cleared the blacks out; I then closed the entrances to the other hives and started home to see to the other 3. When I got there I found two of my hives empty; one swarm had killed the queen and the bees were helping carry the stores from their own hive. I opened the hive to find it completely full of bees. I shall, here-after, keep their entrances small.
JAS. S. COLE, Amherst, Wis., Feb. 22nd, 1878.

When bees are wintered in-doors, such troubles are not unusual. Had you set them out in the evening of the day before, all would have been right, in all probability; but I am very much better pleased to have bees always on their permanent summer stands.

QUESTIONS FROM A BEGINNER.

I want a little advice and very naturally I come to you. I have 7 hives of bees, no two alike. I am immensely interested in bees and honey, so much so that I have spent about $500. in the business with but little profit, unless it is experience; so please don't scold me for having such hives, for I too am a Novice and a "green" one at that. I am strongly in the notion of adopting the L. frame, and Simplicity hive. I think I can "swop" my hives and bees for box hives, and new swarms put into new hives which I will furnish.

Now would *you* advise this course to get rid of my troubles, even if I have to do so at a considerable discount?

I would, by all means, advise using only one sized frame in your apiary, and I think you will save much trouble by adopting the L. frame. This season, our orders are more entirely than ever before, for frames, hives, extractors, sections and almost every thing else, of the L. size; and the convenience of uniformity is now being realized, as it never was before. Several times we have had imported queens ordered, to be sent in nuclei, of Gallup, Quinby, or American frames. To do this, we would have to make such a nucleus hive to order, then the combs must be transferred, and after all was done, it would be very unsafe to ship combs that had just been transferred. I have often talked of purchasing bees of neighbors, but unless the frames will hang in our hives, we must consider the expensive task of transferring the whole lot. A neighbor near me, has now over a hundred colonies, and when asked the size of his frame, he said he never measured them. When he started, he might have taken the L. frame, or even some other regular size, just as well as not, but now, if his bees were to be sold, they would bring at least $100. less, just because they are in a frame like no body's else.

Will it pay me to furnish hives to my neighbors and give them $1,00 for all new swarms (especially 1st, swarms) they put in them?

I should think it would pay, at three times the amount.

If I use the Langstroth Simplicity exclusively for box or comb honey, will I need an extractor?

Being a young physician, of only moderate means and practice, but industrious and hopeful. Will it pay me to make above change of hives? My ambition is to have 30 two story Simplicities all in full blast for comb honey in sections, so that I will not have to look after them so closely as for extracting.

You say you do not wish to be obliged to look after your 30 two story hives so closely as you would if you used the extractor; when swarming time comes, you may conclude that the easiest way will be to get an extractor and take their honey away, to stop that "everlasting swarming." You cannot evade the responsibility by using sections.

In last December I put a candy and flour slab into my weakest colony and in 2 weeks they had plenty of brood, but 2 weeks later after a *cold* spell I found "nary" sign of brood. How's that?

The brood got chilled, and was carried out, as is often the case, after sudden changes, with a weak colony.

Why is it that I find eggs all through the winter but never see any sealed brood? Some of the brood spoken of as resulting from candy and flour was large, but not sealed.
N. C. STEELE.
Kossuth, Miss., Jan. 19th, 1878.

For the same reason; the warm genial weather induced the queen to lay, but the bees would not nurse the eggs into brood, until they had all the requirements, such as warmth, fresh stores, etc. The eggs are either removed, or eaten by the bees. I have not been able to discover which.

A Mr. McDaniels, of New Carlisle, Ind., is selling, through here, a hive (and territory) called the Cottage Bee Hive. He threatens to prosecute me for using nails between the frames in the hive I am making. What do you think of his claim? I know that nails have been used to separate frames, a long time.
C. A. RUSSELL.
Plainwell, Mich. March 18th, 1878.

I am afraid if Mitchell or some of his kin should come along and say he had a patent on using pine boards for bee-hives, many would hand over the money, especially, if he threatened prosecution. So long as people will hand over their money in response to such ridiculous claims and threats, so long will these fellows continue in the business. Nails have been used for spacing frames for the last 20 years, and accounts of them are given in the very first volumes of our bee-journals. I feel that we are all wasting time, in *discussing* anything so absurd, saying nothing of the money wasted.

Our experience in trade with bee-keepers has been very pleasant. We find them intelligent, generous in their ideas of trade and fair honest dealers. We wish every class of people were as true to the right.
W. F. & J. BARNES.
Rockford, Ill., Feb., 4th, 1878.

I think the above speaks very favorably of the writers, for when a man feels pleasantly toward those about him, he is generally on good ground; but when he has a lot of grievances to unfold, of how one after another has wronged him, I, of late, begin to fear he is the worst one of the lot he has been talking about. I take the lesson home too, for I am a "tremenduous" hand to grumble and find fault with folks, and the way they do things. It is early in the morning now, and I am in a good natured mood.

It just now occurs to me, that the above was in a private letter, but I think they wont "mind."

THE FIRST REPORT OF NEW HONEY.

When winter set in I had 41 stocks in good condition, and 10 ordinary ones. Now I have 50 in good condition. I lost one from robbing. I have extracted as much as 24 lbs. from some of my hives, leaving at least 15 lbs. in the hive. The spring has opened very favorably here, several swarms filling boxes. I put in some section boxes a few days ago, and yesterday I divided one swarm. I opened some Italians this morning and found 8 frames in a hive, full of brood. I am Italianizing by making a stock queenless, putting in Italian brood, then cutting out the queen cells and inserting them into black stocks. I suppose some of your readers will be curious to know what bees can gather honey from at this time of the year. Mustard blooms here all winter. Peach trees are in full bloom now, also elm and plum; and our prairies are covered with a species of wild clover now in full bloom. I like the section boxes and shipping case first rate. J. W. ECKMAN.

Richmond, Texas, March 13th, 1878.

I wonder if our friend Perrine had not better start his floating apiary, somewhere in Texas. If he should commence extracting in the middle of March and keep it up until Aug., he ought to get "right smart," of honey; and even if he didn't get more than 5c.—hold on! it would take a good many 5c. pieces to pay for a steam boat, wouldn't it?

WHAT KIND OF CHAFF AND HOW TO USE IT.

Chaff hive rec'd all right. As I have no chaff, will chaffed (cut) straw answer? I also have clover chaff, which of the two is preferable? How will saw-dust do in comparison with the above? Should the chaff be packed in tight, and must it be put in from below?

C. P. FRIEND, East Paris, Mich., March 18th, '78.

I presume cut straw will answer nearly as well as chaff, but as it is usually in longer pieces than chaff, I do not think it will make as good a non-conductor, nor absorb moisture as readily. It should be remembered that wool, feathers, chaff, &c., owe their non-conducting properties to the amount of air they entangle mechanically, thus preventing a circulation. There would be a greater circulation of air through the cut straw, less through the chaff, still less through the wool, and least of all through the feathers. Wool and feathers are not so desirable for bees, because they would get damp and not dry out as the chaff does, and I am afraid the same objection would apply to clover chaff. Which will dry out quickest after a rain, be least likely to pack down and decay, and at the same time be warmest in winter, is the question to be decided. Invert the chaff hive to fill it, taking out the bottom which is lightly nailed in the sample hive. Pack the chaff enough so it will never settle away from the top, but no more. Sawdust is not as good chaff.

FROM KELLEY'S ISLAND.

I just received a postal, and letter from N. C. M. asking for names of all bee-keepers here, in view of getting them as subscribers. I gave him my own as the only one. I also received one from A. Gray, enquiring about N. C. M. and as to prospects for starting a queen nursery here with a Mr. Hughs of Boody, Ills. CHAS. CARPENTER.

Kelley's Island, O., March 18th, 1878.

Thanks, friend C., with your kind aid, I think we shall be able to keep a sharp look out on Kelley's Island, and I think we can pretty effectually prevent a repetition of the frauds that have heretofore been practiced by claiming that queens were reared and fertilized there. If they start an honest business, we will help them all we can.

Does the queen lose her sting when she stings a tough substance? If so does it injure her? I have neve yet been stung by one. You say a queen never leaves the hive except for the purpose of fertilization, or with a swarm attending her. Well, last summer one of my queens came into the house; I was attracted by the loud buzzing against a window frame, and looking to see what it was, lo and behold, her Majesty! The window is at the side of an outside door—about 6 inches between the two. We showed her the door, and she immediately took a B line for the hives—about 20 feet from the door.

By the way, how long would it take for bees to change their lines 2 or 3 rods? I must move mine. My little girl (7 years old) went out bare-foot last summer, stepped on one, and it nearly killed her; she had to be carried about. Now don't get mad at this long epistle. A. N. GRISWOLD.

Naugatuck, Conn., March 18th, 1878.

I can readily believe you never have been stung by a queen, and I feel pretty sure you never will be, although a few instances are on record, of the stinging of the fingers of the operator by the queen. When queens sting each other, they always withdraw the sting, and I presume they would, if allowed to, when they sting a person. One case has been reported in which the sting was torn from the queen's body, and she lived and laid eggs afterward.

The case you mentioned was a rather singular one; I feel quite sure that the queen was a virgin queen out seeking the drones, or she would never have got on the window.

You had virgin queens in the apiary at the time, had you not? If you move your whole apiary, at once, and let the hives all preserve their usual position in regard to each other, you can perhaps do it without any loss; much depends on the surroundings. In all such experiments, you must however keep watch, and see what the bees are doing. Instead of asking me, "pitch in," find out how it answers and then tell me the result. Not that I shall get mad if you ask questions, but that it will do *you* more good; for there is a great deal about bees that I, as well as you, have not learned.

BLUNDERS—INTRODUCING AND TRANSFERRING.

I, in the midst of the honey harvest, transferred into movable frames, several hives with success, and our drouth set in about July 1st. My good neighbor came to me to transfer a colony for him and I promised to be on hand early in the morning July 21st. I took the old box gum into the house and they were the slowest to drive of any I ever tried, but I finally got them out, the comb placed, and all fixed up nicely. Now for the blunder, I set them out on their original stand and in less than an hour the robbers had taken the whole thing. My friend's loss taught me never to transfer at a time when no honey was coming in. The queen I purchased of you, I lost; wishing to introduce her to a populous hive, I took out every frame and examined them closely, twice. I could find no queen nor brood, and coming to the conclusion they were queenless, I went through my process of introduction (caging the queen I wish to introduce, 48 hours before releasing) and never saw her afterwards.

S. P. CAPEHART.

St. Albans, W Va., Feb. 11th, 1878.

Both your blunders are quite common ones, and your idea of warning others by your experience, is very commendable. The reason why I have so often advised transferring during fruit blossoms, is that bees will seldom rob at such a time. Never let a queen loose in a hive, thinking they are queenless simply because you cannot find the queen; give them some brood, and see if they will start queen cells, then you are sure.

STARTING AN APIARY, BEE CANDY, COTTON SEED FOR PACKING ,ETC.

If I have made any advance in bee culture it is owing to your advice. Not able to afford the purchase of colonies, I could only get a start by taking a few swarms off the hands of those who were going to kill or neglect them. In this way, I obtained 14 old gum hives. All except 3 however, were on condition; the owners were to get the honey, I the bees, empty comb and brood comb. They were recieved and transferred during summer and fall from 15th, of Aug. to 15th, of Nov. One hive transferred and robbed at the latter date, have done remarkably well. This fact I thought worth notice, for it was a mere experiment. I could barely fill 4 frames with combs and pieces. There was no brood at that date, not 4 lbs., of honey in all and it was a very large swarm. Of course I fed; at first on A. J. Cook's plan, within the hive, with syrup in a sack supported by a brood frame. This did very well until the weather became very cold. Then the bees neglecting it, it dripped a little and did mischief. Resort was then had to candy poured out ½ inch or so thick on paper 6x16; this was laid on top of the frames under the duck. The success seems perfect so far.

I packed my hives on their summer stands in cotton seed. For your southern disciples who often cannot get chaff, you ought to know the virtues of cotton seed as a non-conductor. I have long used it for packing around temporary ice boxes and bins for sweet potatoes, and find it the very thing for top cushions and winter packing.

You published, last fall, my contribution on honey producing vines with initials S. G., instead of L. J. It is of no consequence only that some of your southern readers might find it convenient to know they have a lover of Botany near them who will take pleasure in answering any inquiries concerning our natural plants. LAWRENCE JOHNSON.

Holly Springs, Miss. Feb. 28th, 1878.

A REPORT IN FAVOR OF ARTIFICIAL HEAT.

The imported queen I received from you, I have in my parlor hive, placed in the window to the South with a chance to fly at any time they see fit. A heater stove is kept burning with a coal fire, about 10 feet from the hive. They have not lost two dozen bees, nor have they consumed 5 lbs. of honey, thus far. I have kept a swarm of bees in the same place for the last 5 years, and it has always come out with flying colors. The first to swarm, and giving not less than 50 to 75 lbs. of box honey each year, while it contains but 5 frames. Should I ever build a bee house I would build it so that the bees could fly at any time, and would have the front made movable, so that in summer it could be taken away, letting hives remain; and in the winter I would have, in the middle of the house, a self feeding heater with pipe running along the rear of the house toward each end of the bee shed. Then the bees would not get the dysentery nor dwindling, nor get uneasy; and if they should, a bee would go to the outlet and when it found the weather cold out side, it would say "whew!" and all would cool down again. And my belief is that bees would winter on one third the honey they would otherwise use. H. H. BROWN.

Light Street, Pa., Feb. 12th, 1878.

The above sounds very favorable, it is true, but even should we always succeed as well as our friend, I hardly think it would pay expenses, generally.

MY commencement in bee culture, consisted of one swarm, which I found on a limb of a beech tree about sun rise on July 3d, 1876. Last year I bought 4 swarms; the first went to the woods, I transferred the old one to a frame hive. I got one stock from the woods, and now have 5 pretty good stands. They have been carrying natural pollen for the last three days. J. H. THORNBURY.

Winchester, Ind., March 11th, 1878.

The secion boxes came safely yesterday, and are beautifully made. The freight charges on the 1,000 amounted to $3.55. J. D. BEDELL.

Franklin, St. Mary's Parish, La., Feb. 27th, '78.

MITCHELL'S PATENT, &C.

Mitchell claims a patent on division boards, and especially the little strip of rag tacked on the ends to make it fit tightly. I got the idea from some of Mr. Langstroth's old hives, (made some 10 or 15 years ago) divided in that way for making nuclei. I think the public cannot be too well warned against impositions by way of patents, for as soon as Mitchell conceives an idea or hears of one, he breaks for Washington in such a hurry as to almost leave his coat tail. Then somebody has got to be humbugged.

P. S.—I send you a circular which Mitchell's agent left with me, but perhaps you have seen them ere this. D. A. MCCORD.

Oxford, O., March. 1st, 1878.

It is true that Mitchell has claimed very boldly, having a patent on all division boards with a strip of cloth round the edge, but an examination of the patent office reports shows he has no patent on the hive at all, and none on the division board as he uses it. His patent is on a combination of "fixins" attached to the division board, that I believe has never been used by anybody. Mitchell is not much worse than the general run of patent hive men in this respect, but he has obtained so much mony by his false pretences, that I almost feel it a duty to keep a standing warning in print. The patent office *Gazette* is sent *gratis*, into almost every town, and people could easily look up these things for themselves if they would only take the time. Such an examination shows that even the Bingham smoker, is one of the "combination" patents, and among the things claimed as a new invention, is the tapering nozzle that Mr. Quinby always used, and the steel springs that has been for years shown in the advertising pages of the *British Bee Journal*. I can dicover nothing in his claim in regard to the direct draft, and nothing that would make my smoker an infringement—I think I will stop, or friend Martin might think I am quarreling again. Once more; do not give Mitchell nor anybody else, any of your money, but just attend quietly to your own affairs, and this patent business on bee-hives will all pass away of itself. I presume I have seen all the price lists that Mitchell has ever sent out, and I have seen all of his "clips" at *me*. I can freely forgive them, because it is nothing more than what I expected, when I first undertook the Humbug and Swindle department.

HARDENING WAX BY BOILING.

I once gave a small cake of wax to a dentist, who soon wanted to buy some, saying it was very soft, and very good for his use. He said wax ought not to be boiled much, as boiling hardens it. Seeing the complaints in regard to the sagging of comb fdn., I thought boiling the wax might be an advantage.

CALVIN OTIS, New Holstein, Wis., March, 9th, '78.

It hardens wax to boil it, especially if you overheat it, but as this also destroys its elasticity, and makes it brittle, it would not answer for fdn.; to prevent this, wax should always be melted inside of a boiler of water, or rather, the boiler should have double walls, with a water space between the wax and the fire. Bees-wax seems to contain some kind of a volatile oil that makes it soft, and some specimens contain much more than others. If the wax is exposed to the air in thin sheets, this passes off, and the wax becomes much harder. It is for this reason, we always allow the sheets of wax to stand at least one day after dipping, before rolling them. It is quite likely that heating the wax, also tends to drive off this element. Bleaching, almost entirely frees the wax from this substance, and this is why white wax is too hard for starters for comb honey. If some one can tell us how to bleach wax, and still leave it as soft as the yellow, we would like to hear from them. Nothing but an actual test in the hive in the hottest summer weather, will demonstrate its fitness for the purpose.

THIEVES.

Thieves are plenty this season, as I wrote you last month. They robbed mine 3 times, destroying nearly 2 swarms. After I arranged wires around my yard I was alarmed one night and went out and "blazed away" with the old musket charged with gravel stones. I did not find any gone next morning and have not been troubled any since, but do not feel safe to have my bees exposed. I think of building a house or something to keep out thieves.

N. A. PRUDDEN.

Ann Arbor, Mich., Jan. 13th, 1878.

I wonder if those who steal bee-hives, really know how much damage they sometimes do? Our friend Crall, of Ashland, O., stated a few days ago, that the hive containing his imported queen, had been stolen, although he had them all safely, as he supposed, in his bee-house. The house was not locked, as he thought it unnecessary. If their plan was to carry off the hive, they would find it a hard matter, in a house apiary, like ours. Can we not do something toward showing humanity that it does not *pay* to steal?

AGE OF WORKER BEES, AND EXTRACTORS THAT THROW HONEY OVER THE CAN.

Mr. Bass of Toulon, who has kept bees over 20 years, says he knows that bees live longer than 45 days in the summer, for he put a new swarm into a new box hive in June, and in Oct., the hive was full of new comb, honey, and a good swarm of bees, and he and his wife said they knew there had been no bees hatched in any of the combs, which was proof that those bees lived about 4 months, and he didn't know but they might have lived 3 or 4 years if he had not killed them. He says there is too much "fool nonsense" in the bee journals.

I was in the *A. B. J.* office last Dec. looking at extractors &c., and was suprised to find there was no tin cover over your extractor. I asked Mr. Newman if the honey would not fly over the top, when turning fast enough to throw it out of the combs, and I understood him to say it would.

D. TYRRELL.

Toulon, Ills., Feb. 1st, 1878.

If there was no brood in the hive during all this time, of course they had no laying queen, and therefore the bees were not in a normal condition. It would be a little singular that such a swarm should fill the hive with honey, and that there should be none of the small workers from a drone laying queen, nor from fertile workers. I once found a hive that had a queen with bad wings; they built comb, and filled the hive with honey, and the bees held out much longer than they do ordinarily, for they had not exhausted themselves in nursing and rearing young bees as an ordinary swarm does; but the hive contained brood and small drones, though no worker brood. I am inclined to think the hive mentioned contained brood of some kind, or the bees would not have staid and built comb.

Either you sadly misunderstood friend Newman, or else he has sadly misunderstood the purpose of an extractor. Manufacturers who would send out extractors that would throw honey over the top, on to ones clothing, ought to be dipped in honey all over, until they know just how nice it is, to have it daubing round. A *tin* cover would add greatly to the expense, and would be very unhandy; if I had to shut down the cover to keep the honey in, every time I wanted to extract a comb, I am afraid I should be tempted to put the whole machine into the rubbish heap.

The wire cloth and smoker came to hand in good condition; tried the smoker and was well pleased with it; do not see how you can make it for the price you ask.

WILMER GIBSON.

Warsaw, La. Feb. 7th. 1878.

HOW TO GET "A START."

I want to tell you of a little experiment I have been making with a small swarm of bees, not enough to fill a pint measure. They came out on the first day of July, on Sunday, and were hived by a neighbor. He did not think them "any good" and gave them to me. During the first 5 days they built a piece of comb 2x4 inches. I fixed 3 pieces of comb in the frames for them and put the bees in; they clustered in one corner of the hive but did not get on the other combs, until I fed them some honey which seemed to start them to work. On the 11th day, the queen began laying, and they increased quite rapidly. In Nov. I gave them more comb honey and wrapped them up for winter. I think they are all right yet.

D. C. BROWN.

Stamford, Ct., Feb. 23d, 1878.

I felt a few days ago as though I was "Big Injun" on wintering bees, for I thought I had got them through the winter without losing a single stock; but upon looking them over, I found one queenless, and only about ½ pt. of bees left, so I suppose I shall have to count that lost. However, I feel much better than I did three years ago when I lost every one, of dysentery. I had last fall 29 stocks and of these, 28 are now in good condition. They were all packed in boxes, with chaff around the body of the hive, and straw around and over the cap, with chaff cushions over the frames.

I enclose you a card which a neighbor of mine has just handed me, showing a cut of a new stone ware hive manufactured in Missouri. Of all, "patent hive humbugs," it seems to me this is the greatest. I think one might as well try to winter bees on a cake of ice as in this hive.

JAS. MATTOON.

Atwater, O. March 11th. '78.

COMBS BREAKING DOWN WHEN FEEDING, &C.

We, that is my wife and I, are studying bees; we bought one swarm last year, after the season was nearly over and put them in a common box hive. In the fall we found that they had a good deal of comb, but very little honey. Hence we have had a pretty good opportunity to experiment with them by way of feeding. A few weeks ago, the center comb fell to the bottom of the hive, and we felt compelled to transfer them to a movable comb hive. This was successfully accomplished and they are busy every fine day. Every step that we take is a new one. We do not propose to increase the stock faster than we are sure of our ground.

Will it pay to get an extractor for one swarm? Also, how many swarms can we get from the one we have, and have good stocks and some honey? We study Langstroth diligently, but as yet have only theory.

H. S. BENNETT.

Fisk Unversity, Nashville, Tenn., Feb. 25th, 1878.

When bees are fed rapidly, the combs are quite apt to break down. It is, probably, because they do not have time to build the comb as strong as they would with a natural yield. If you were never going to have more than one colony, I hardly think I would advise an extractor, since we have section boxes that can be used so simply. I cannot tell you how many good stocks you could get from one. Some bee-keepers, in some localities, might secure a dozen, by artificial swarming; others, in other localities, would have hard work, to increase to even two. It depends very much on how much honey you take away from them. One swarm, and 50 lbs of honey, would be a fair average, if they were well cared for.

CLIPPED WINGS AND SWARMING.

If queens wings *are* clipped wont the swarm sometimes cluster *anyhow*? When returning could they not be hived by covering the old hive, and placing the new one close beside the old, *easier* than to have them cluster on the rake?

Bees are doing nicely so far; plenty of young bees, and sealed brood in three combs, a circle 5 inches in diameter. Good enough, eh? J. A. WARD.

Madisonville, O., Fed., 23d, 1878.

The swarm will sometimes cluster "any how," but they will not remain clustered very long, unless some kind of a queen is with them. You could, without doubt, get them into the new hive by covering the old one and putting the new one with the entrance very near the old; but it would be a surer way, to remove the old one, as soon as most of the bees are out, placing the new one in its stead. If you have a place already fixed for the old one, and some one is near to help carry it, it is a very quick and easy way of taking care of swarms. If you cage the queen as she hops out, and lay the cage at the entrance, you may go off and leave them, even while they are in the air. I know of but one thing that could prevent their coming back, and that is another swarm coming out at the same time; they might possibly join with this. After you have the queen safely caged, you can tie the cage to the rake, with a bush on it, or move the parent hive away, whichever operation you find easiest, in practice.

You will remembsr we bought two colonies of bees of you over one year ago. Well, we lost one; the other, we think, did well; it is still living with plenty of honey to spare this spring. If it swarmed the young swarm got away from us,we cannot say as to that. It is the only colony in the whole Territory of New Mexico. If we make a success, will keep you posted. It is still a question whether bees will do well in this Territory. M. W. MILLS.

New Mexico, March 5th. 1878.

To-day my bees are bringing in heavy loads of pollen, but I notice the Italians bring more than two loads while the Blacks bring one. E. E. SMITH.

Lickley's Corners, Mich. March 7th., '78.

I purchased 2 swarms 3 years ago next July, paying $10.00 for them, and I can truly say I never invested money so well before or since. Having kept a strict account with them, I find the money has tripled, and I have 9 swarms to begin this season with. JOSEPH H. STRONG.

West Hartford, Conn. March 8th. 1878.

A BEGINNER'S FIRST SEASON.

Last spring I started with two colonies; one in an American hive, and one in a common box hive. Each gave me 4 swarms and over 300 lbs. of surplus honey. My first swarm came out of the box hive, on the 18th of May, and went to a tree, without stopping to cluster. Next day I took a hive to the woods and tried to drive them into it, but they would not be driven. The next move I made was to cut open the body, with the intention of scooping them into the hive, but I found them in such a position that I could not reach them. I next placed a shingle over them, and by stirring them up and keeping them in motion, I succeeded in getting about ⅓ of them to cluster on the under side of the shingle. I shook these in front of the hive and they went in. The rest followed, by keeping them "stirred up." Since all this worry and trouble I have taken quite a fancy to the method of dividing. I let the box hive send out one more swarm, then transferred them to a frame hive. This was my first job of transferring. In July I purchased one Italian queen, and introduced her to this colony. I left them on their summer stands with boards around and over them to keep off the wind and storm. They have upward ventilation and are at the present time brooding. Last spring I knew nothing about bee-keeping. Now I can divide, transfer, raise and introduce queens, and do all other work that pertains to bee culture. JAMES H. PRESCOTT.

Gobleville, Mich. Feb, 18th. 1878.

It has been intimated that I give great prominence to reports from beginners; is it not well to do so? These new hands enter into the business with such vigor and enthusiasm, that they often do better the first few seasons, than when it gets to be an old story; and their reports point a clear moral to us all, on the importance of giving each colony the care and attention they need, at the proper time; also that bee-culture is not very difficult to learn, when one studies and pushes ahead. Some of our young men with a few years experience, are beating our veterans who have spent a life in the industry. Do not forget "blasted hopes," but study well the causes of success and failure.

On page 210, Aug. No., you give dimensions in full for the end board of packing box but for nothing else. Length of strips above and below, also of end strips, and length and width of top and bottom would be appreciated; also the size of the glass.

Do lumbermen out your way keep ⅜ in. boards to sell, or do you split inch boards? B. LUNDERER.

I omitted giving the remaining dimensions, for fear of guiding you into error, thinking the safest way would be to set as many sections together as you wished the case to contain, and then to cut your thin strips to the proper length; and the same with the glass. See what sized glass you can purchase to best advantage in your stores, and then saw the rabbets to allow them to slide in, accordingly. I have never found any ⅜ lumber kept in stock, but have been obliged to have inch lumber split and dressed. Very cheap lumber will answer for this purpose, if we sort it out a little. Re-sawing lumber, is rather too heavy work for the foot-power saws, but the hand-ripper described on another page, answers beautifully for ripping or re-sawing anything not more than 3¾ inches through.

SPRING DWINDLING.

My bees (Italians) are dying in considerable numbers; they crawl out of the hive and do not seem to have life enough to get off the bottom board, but die at the very entrance. They have plenty of good white honey nicely capped. It does not appear like dysentery as you describe it. It may be the old bees, but I would think they would fly away. What do you think is the matter? The hive is clean, in a good warm place out-doors and shielded from the cold winds, on the south side of a building.

D. W. STARKEY.

Batavia, Ill., March 7th, 1878.

The case you mention is, without doubt, one of the phases of the old bee disease or spring dwindling, as it is called. If only a few of the bees are affected, I would not mind it, but if so many that the stock gets seriously depleted, it may be well to feel alarmed. The remedy is to unite to keep up the strength of the colonies, but this, sometimes, seems to do but little good. I have never seen a case of it where the bees were packed in chaff, but as I have had but few cases of late in any shape, it may not be due to the chaff entirely. Yesterday, we found a colony that had been skipped, in the fall chaff packing; nothing was over the cluster, except a sheet of duck, and that had several holes through it. The outside combs were full of dead bees, and the bottom board was covered with heaps of them. More than half the colony, which was quite strong, had perished, and yet the chaff packed ones all round them, many of them quite weak, had lost scarcely a bee. No bees were found dead in the cells, among those that were closed down to a few combs, although some were so weak that they wintered on but 3 combs. I am inclined to think the trouble you have mentioned, friend S. would not have occurred, had your bees been similarly packed.

PURCHASING "RIGHTS."

What do you ask for the right to manufacture Simplicity hives, to sell? I think I can make wood work as cheaply here or cheaper than it can be done anywhere, and can ship also at low freights by river to many points. Of course, friend, Root I know you are not a patent man, but I am willing to pay you something.
REINHARD STEHLE.
Marietta, Ohio, March 6th, 1878.

Thank you my friend, for your kind offer. You, and everybody else, are perfectly welcome to copy every thing I have made or invented, and the satisfaction of knowing I have helped my fellows, is all the pay I shall ever want, I hope. Even if I should not get all the credit I deserve, it matters very little, for I have full faith that He who careth for the sparrows, will take care of and provide for His children, who are of more value than many sparrows. Do not be afraid I shall ever consider your business an opposition one, for I am learning now, if I did not know it before, that the world is amply wide for us all. Do good work, and at a low price, and I will give you all the aid I possibly can; whenever I have done this with a pure unselfish spirit, I have always found plenty of kind friends to come forward voluntarily, and I have had plenty and to spare. It is in this way that God shows His care and love for those who are deserving, as I understand Him, and I have no fear, my friends, of your not giving me all the credit, aye and money too, that I deserve, for I am sure you have, so far, given me more of both.

THIN FOUNDATION.

I think you say, fdn. will measure from 4 to 9 square feet per lb. Can you send me 100 lbs. of fdn. (worker) that will measure 800 square feet? If so, at what price? Bees had a good fly to-day. One stock didn't fly worth a cent,—honey on one side, bees on the other—dead. Looked in a few hives—brood in one—no brood, *no pollen* in the others—bad shape—with one or two warm still days, we'll fix 'em. Carried in a few lbs. of flour to-day.
J. H. TOWNLEY.
Tompkins, Mich. March 2nd, '78.

We can make fdn. with very slight walls, as thin as 9 square feet to the lb., but it would be very difficult to get the hands to put up a hundred lbs. so thin as to cover even 800 ft. With our present methods of working, we cannot make sheets roll of a uniform thickness, and I cannot see that it is at all important. We tried rolling the sheets of wax through plain rolls, to give them an even thickness, more than two years ago, but those who undertake the task, will probably find where the trouble comes in. If you had put your bees on as few combs as they could cover, friend T., I do not see how the honey could get on one side, and the bees on the other. *You* should understand how to work chaff hives, if any one does.

YELLOW QUEENS, AND BLACK QUEENS THAT HAVE MATED WITH ITALIAN DRONES.

Which do you consider best to rear queens from, a dark, or a deep yellow Italian queen? If there be any difference, please explain. How far apart should Blacks and Italians be to prevent crossing? Did you ever have a black queen mate with an Italian drone? I bought a stand of Blacks last summer,(the nearest Italians being six miles away), the queen of which mated with an Italian drone. How are they for honey gathering, &c.? Bees have been wintered so far without loss. Queens commenced laying Feb. 14th, three weeks later than last year. I now have almost all kinds of bees,—blacks, Italians and hybrids. I think I will Italianize most of them next season. I have two black queens which I do not think can be outstripped by any race of bees, as far as bees and honey are concerned.
R. H. A.
March 4th., 1878.

I do not know which is best, a dark queen or a light one, but these eager questioning new beginners, will very soon find out, at the rate they are now pushing their researches. I am inclined to think color has but little to with their value. I have had black queens that have met Italian drones, and have reported in regard to them. I cannot see that the workers differ, either in looks or "zeal," from ordinary hybrids, being very much ahead of common black bees. I think bees as far apart as the distance you have named, rarely mix, yet the Italians seem to spread very rapidly. Last summer, in hunting bees 10 miles from our apiary, I found beautifully marked Italians, and could not find that any were kept within at least, 5 or 6 miles from the spot. Of course, we have occasionally black queens equal to the average Italians, and we have, also, Italians not up to the average of the blacks; but taking the general run of the two races, the Italians are almost immeasurably ahead. In regard to yellow queens, I believe they are more likely to produce yellow bees, and bees that are more gentle to handle; but as a rule, these gentle bees are not as good honey gatherers.

VARNISHING HIVES INSIDE.

Would it be any advantage to give new hives a coat of varnish inside, as bees collect around furniture and carriage bodies on the platforms in the spring of the year when they are put out-doors to dry; would it not save them the gumming over the sides of the hives, or help them a good deal? If not, would it annoy or hurt them?
SAM'L R. LIPPINCOTT.
Indianapolis, Ind., Mar. 4th, 1878.

It would doubtless save the bees some trouble, but the hives would be more liable to dampness, because the dry wood absorbs moisture in a way the varnished surface would not. I do not think it would do any perceptible harm.

I feel like a "burnt child" in this "bee business" as I bought a farm right and sample gum for $18.00 of N. C. Mitchell. I paid 50 cts. for the first lessons in Bee Culture or "Bee-Keeper's Guide" and I don't consider that I made much in that deal with him, so I will move slowly after this. I am 62 years old and served three years in the federal army. I had three wounds and can not use my right hand; I write with my left.
JAMES E. SKEEN.
Witts' Foundry, Tenn., Feb. 26th, 1878.

Our Homes.

And why beholdest thou the mote that is in thy brother's eye, but perceivest not the beam that is in thine own eye?—Luke, 6; 41.

JUST back of where I sit writing, we used to have a pencil case, with a glass over the top. Occasionally, some customer or friend while talking, would lean carelessly on the glass, and it would be broken. They would of course apologize for their carelessness, and hand over a sufficient amount of money to make the case good, generally remarking that they ought to have known better than to lean on a glass in that way. In a few days the case would be broken again, in the same way, and I, finally losing patience, spoke something in this wise, "I do wish people had sense enough to keep their elbows off a glass case."

But still they broke them and felt badly about it, and I took their money to pay for having a new glass put in. What do you think about it my friends?

The fact that good people kept leaning on the glass, began to make me feel, especially when I was not in a complaining mood, that perhaps I ought not to ask them, or rather to expect them not to lean on the case, situated exactly as that one was. In one of these better moments, I moved one case away,(there were two of them) and had a heavy plate glass, at an expense of $7.00, put in the other. Of course there was no more breaking. Do you not think I felt better about it? And is it not well for us to look carefully at home, and see if the fault is not ours, before we blame poor humanity for doing something that a great many people would do, especially, when they do it innocently, as was the case in breaking the glasses, and to consider whether there is not some unnoticed beam in our own eyes, before we are too severe on a brother, or many brothers, because there are motes in their eyes?

In Mr. Langstroth's last writing for GLEANINGS, he seems to have struck on the same line of thought, and although for years he thought that the world had been treating him unkindly, was he not in a better and happier spirit, when he wrote the following, that I have taken from page 79, of our volume III?

> Now a few words about patenting devices which, however valuable, can be easily made, and without a large investment in machinery, &c. Such patents will be largely infringed upon and the patentee will usually find himself without any redress. The patent laws do not, and cannot protect him. He may commence legal proceedings in the United States Courts against infringers. But few have the means to do this, even if it would pay to hunt up and prosecute small infringers. The patent is like a good pasture, with weak walls or fences, and hungry cattle all around it—sure in due time to be trampled down and eaten up. If a patent is upon something which requires much skill, and considerable capital for its manufacture, it is far less likely to be infringed. Men are not apt to invest largely without careful inquiry as to the rights of others—they have too much at stake and by their large investments can be too easily reached for damages.

Does it not approach, in spirit, to the sentiment expressed in, "Father forgive them, for they know not what they do?"

I have, before, mentioned as an illustration, the experiment of hanging out a basket of fine apples, and requesting by a card, that all who take an apple leave a penny. There is no question about it, all who take one of the apples, *should* leave a penny in its place; but so long as we are well aware that humanity will not do it, shall we censure them too severely? My friend, are you quite sure that you would always leave the penny? and you? and you? and *you*? I think it very likely that nearly all of you say you would; now please do not get angry, but my friend I am not quite sure you would. To come right home, unless I made some strong resolution, or unless I had some particular motive to make me vehement in the matter, I am pretty sure I should, after a while, get to taking the apples without leaving a penny. I should have a good excuse, no doubt, for we always do; I think it would come about something in this manner. I would feel in my pocket for a penny, and being very tired and thirsty, I would make up my mind to take the nice apple, and put in a penny when I came back; or to make it all very fair, I would sometime put in two pennies. This I would do for a while, and then I would get more careless, and take a half dozen without remembering how many, and to make it up, put in a half dime, thinking I had more than paid for all I had taken. If the owner of the basket should ever call me to account, I would protest that I had put in more money than I had taken apples. If proof were brought to bear that was unquestionable I would in great astonishment say, "Why, I cannot think it *possible*, that I have really taken so many."

At another time, I might claim the apple was a miserable little affair, and that I did not think I ought, in justice, to pay anything for it. Again the complaint would be that I did not have it, it was somebody who was going along with me. At another time, I might say I had entirely forgotten the matter, and if censured for my forgetfulness, perhaps I would claim I had done no wrong at all, for I honestly meant to keep it all straight, but it was forgotten, and therefore I was not really to blame.

The excuses would be almost endless, for the disappearance of the apples, and the lack of pennies in their stead. At the same time, no one would be willing to be called a thief. If you complained of your losses, and appealed to—to—well I hardly know who you could appeal to, for you would be told on all sides that you must be a fool, to think you could sell apples without standing by your basket and watching it. Is humanity to blame because they will not pay for every thing they have, without being watched? All you that think they are to blame, please raise the hand! Very well; now all who think they are *not* to blame, please raise the hand! If you want a little more time to study the question, think of it a while.

Again; should people be blamed for doing just such things as we ourselves do? Be careful now, or I shall have you in a "tight place." If you say they are, then you admit there is a great need of reformation, and that it should include your own self. If you say they are not, then I ask, why do you censure and find fault with others? Don't you find fault with anybody you know? Get some friend to watch you all day, and see if you do not; especially if you are leading an active business life.

We are all careless and heedless, awfully careless and heedless of the rights of others. How do I know? Well I will tell you. Since I have been engaged in the Sabbath School work, I have been obliged to make humanity a study, more or less, and I have tried to take an outside view of things, and to deduct general principles, from seeing what the great majority of individuals would do, under the same or similar circumstances. I tried experiments on humanity, if you will pardon the term, not solely with a purpose of seeing how much evil there is in us, but with a view also, of bringing out the good. The water tank at our door, has been one of the experiments. I really do not like to tell you all the results, for it will sound like finding fault with my fellow men, or fellow boys, rather. Kind words we have had from many, it is true, but careless indifference from by far the greater number. The best water in town has to be carried quite a distance, and as I found by experiment that the greater part of the people preferred water from that particular well, we have kept the tank supplied from that source for the past year. As a drinking cup of anything but metal was out of the question, we were obliged to keep the cups chained to prevent their being lost. Could they not hang up a cup after slaking their thirst? Well it would seem they could, but in actual practice, we find a good many will drop the cup on the ground, as soon as they have had enough. I confess that seems rather a hard statement, but try it, and see how it works, on a busy street. During one time in the hottest of the weather, some of the street boys got a fashion of turning the faucet, so as to let the water all run out on the sidewalk, obliging us to go and bring more. What was to be done? The patience of our most patient hands was worn threadbare, and many times did I decide to take away the water tank, and give up the experiment; but as often did the disappointed looks of thirsty humanity, when they found the tank empty, soften my heart, and I prayed that all beams might be taken from my own eyes, in a way that would enable me best to labor for the good of those provoking street boys, and to say in sincerity, "Father forgive them, for they know not what they do." I "walked round the central stairway," and besides studying bee-hives and bee-feeders, studied on some plan of giving thirsty people pure water, out on the street, without tempting the boys to such deeds of mischief. Perhaps I should remark that they started their first fun, by fixing a long string to the cups in the evening, watching until some innocent pedestrian had raised it just to his lips, then jerking the cup out of his hands. Of course, we scolded the boys for this; they replied back, and then I am afraid we—some of us—threatened them. It did seem, as if a little wholesome "pounding" would be just what these "street Arabs" needed to bring them into a sense of the "fitness of things," and it seemed also, as if such a course would be particularly "soothing" to the one who had to bring the water and ice. Do you suppose I could ask God to help me, when I had any such thoughts towards these poor boys. I used to be one among just such boys, when I robbed strawberry gardens. I tell you I find a "great big" mote in my own heart, if not in my eye. I mentioned the matter in the Sunday morning Bible class, and we decided to pray for these boys who were troubling us. The young man who carried the water was present, and he, like our young friend of last month, doubted the wisdom of trying moral suasion with any such boys, as these in question. Do you wish to know how it came out? Well, I'll tell you. A bright new tin cup now hangs beside the tank, without even a chain to it, for the boys broke off all the chains and carried them away; yet the cup has been there some time, and it is very seldom dropped on the pavement, as before. No one wastes the water as they did, and no one leaves the faucet turned. Of course I shall have fresh battles to fight, for Satan or "evil impulses" are always at work, but the same weapon is always ready for all of us, and it is always equal to any emergency that may turn up. The two edged sword of prayer, will always conquer, if we honestly pray that the beams may be taken from our own eyes that we may see clearly. If you should ever undertake any kind of mission work, my friend, be careful you do not get provoked or even annoyed, no matter what may come up; very provoking cases will do you good, if you only keep the beams out of your own eyes. "Blessed are ye when men shall persecute you, and say all manner of evil things against you, falsely, for my sake." This is true, without any question, if we could only rise above these trifles, and make a practical application of it. I believe it, in my better moments, and I resolve to have more faith next time; but how far, how very far, I fall short in practice. Oft-times I can only say, "My Father, I am a poor blind stumbling child, stubborn and headstrong withal. I have tried to do better so often, and failed so miserably, that all I can do, is to come to Thee just as I am. Take me, this journal, my business, and all, and use it for the benefit of this busy throng of humanity, of which I am but *one*."

You may say that such prayers are only plain common sense after all, for when the boys saw there was no fight in me, they stopped bothering me. I agree with you, for the religion that helps me through this world of trouble, is plain common sense and nothing more. There is a kind of beam that gets into our eyes in trying times, that seems especially hard to get out; and to illustrate the point I will narrate a little incident from real life.

A man who was much in the habit of going to God in prayer with all his business troubles, discovered that some one in his employ was, in spite of careful watching, robbing his cash drawer. The matter went on for weeks and months, until a year had passed, and yet the mystery baffled all his skill and research. As usual, he made up his mind to discharge the offender without mercy, just as soon as he could put his hand upon him. After the amount had reached a sum that would send him to the penitentiary, the evidence seemed to point in a certain direction, but our friend could hardly think of the idea of laying traps or playing the spy on any of those around him. Any one of you who has ever in life been in a similar predicament, can understand how painful such a task is. One evening, after the footing of the books showed the cash short an unusual amount, he started out with the determination of sifting the matter to the bottom, whatever the expense, and no matter how disagreeable the task might be. As he meditated on the task before him, and felt how utterly ignorant he was of the means usually employed by detectives in similar work, and how totally inadequate he was to the task, it occurred to him that if his errand were a just one, he had a right, nay it was his duty to ask help of that Great Strong Friend who had lifted him over his troubles and trials so often. It was dark and rainy, and the pavements were wet and sloppy, yet for all that, down on his knees he went, and as the street was, for the time, deserted, he prayed aloud that God would give him wisdom and show him how to keep his little property from the hands of those who so unscrupously appropriated it. I wish to digress here, just a little. What is the use of praying aloud? Does not God know our inmost thoughts? These are questions I have asked myself many times, and it is not until within the past few months, that I have felt any very strong desire to get away by myself, where I could tell God my thoughts "out loud." I can pray while walking along, or while sitting here at my work and I often do ask God to help me when confusion and cares seem to multiply, but it *does not* "make me over new," like going down home into the honey house where the sawdust walls prevent the slightest sound from being heard outside, and where I can tell *Him* all my troubles. When we are in deep distress, and so much in earnest that we can bow ourselves on the wet pavement, and talk aloud to this friend in need, we may be pretty sure our prayers will be answered, if our requests are proper ones, and not *altogether selfish*. I lay particular stress on these last two words, for earnest prayer, is pretty sure to show us the beams in our own eyes.

As he knelt in the rain, the question came very soon, "If you are given wisdom to hunt up the offender, what will you do with him? Is it the loss of your money that troubles you, or the loss of the soul of a fellow being? Will you forgive him if he asks to be forgiven, and lend a helping hand, to one in more distress, perhaps, than you?"

Our friend had Christianity enough, to turn about at once, and pray, not for himself, but for the guilty one, and to promise God if the opportunity were given him, he would pardon all, and do his best to help about a reformation. As he rose up, through the rain and darkness, new light seemed to be shed on the matter in question, and the difficult problem was as plain as A B C. I will relate the course he took to show you how, even an ignorant man, may have wisdom given him, that, it seems to me, will compare very well with that of a skillful lawyer or detective.

He knew the young man had been paying out money, more than he had received, and it took but a few minutes to get facts that could not easily be contraverted. He then went straight to his lodging place, called him out, and in a frank straight forward way spoke to him as follows:

"Joseph, have you taken any money from the drawer to-day?"

"No sir."

"Not one copper?"

"No sir, but I put in a copper, and took a postal card."

"You are perfectly sure, you took no money out?"

"Yes I am perfectly sure I did not."

"Now do not hesitate, but answer the full truth, promptly. Where did you get the money you paid H. this morning?"

"A man sent it to me in a letter."

"You have the letter?"

"No, I burned it up."

"Come with me to the telegraph office, and we will telegraph to the man."

One moment of irresolution, a quiver of the lip, and then a great sob, as he broke forth,

"Oh stop, don't go any farther; I have taken your money, I will own up all, but do give me another chance, do let me try once more, to be a better boy. I have tried not to do so any more, and I have felt so badly about it. But somehow I would get bad, and I do not know what made me do so."

As the hand of the employer took that of the unhappy boy, do you know how fervently he could pray, "forgive us our debts as we forgive our debtors?" The boy is now at work in his old place, paying the just debt he owes, and the employer learned a lesson about having a beam in ones eye even while calling "stop thief" to one who is robbing him. I do not mean to say I would screen the guilty from the penalty of the law, but I would be very careful that all other means were tried, before sending any boy to the penitentiary. It may be that the young man will go back to his old habits yet, but I think if he is watched over and cared for, there will be little danger of it; and who can compute the value of an immortal soul? As the employer went to his home that night with a light heart, do you not think he could feel, "blessed are ye when men shall persecute you," and that truly, "all things shall work together for good, to those that love and fear the Lord?"

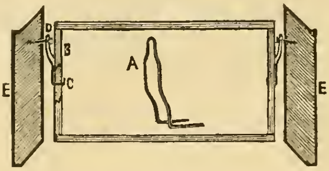
ALMOST THE $25. CHAFF HIVE.

SOMETHING VERY INGENIOUS AT LEAST.

THE following device, comes the nearest in my estimation of what is wanted, of anything yet submitted, and although I have not yet decided to use it at all, our friend has permitted me to have the illustrations made, and to describe it.

Let E. E. represent the end boards to a

Simplicity hive, with the frame in place. It will be observed that this frame has the top and bottom alike, and that there are no projections, for it to hang on. The only supports the frame has, are the bent wire staples, shown at D, C, and on a more enlarged scale, at A. These are made of a large size of tinned broom wire, which is so elastic as to give considerable spring. I need hardly state that they are to be hung on a nail head, in the end of the hive. These nails are all driven in the exact spot, by having a strip of iron, with a notch where every nail is to come. Drive the nail in the notch, until the head just comes down to the iron. Move your gauge away, and it is all done. These nails are cheaper than the metal rabbet. If the bees do attach propolis to the polished wire, it will snap off, almost as soon as the wire is touched. To fasten on these wire loops, two holes are pricked at once, with a two pronged instrument, or several end bars may be pierced at once, by having a foot power punch. The wire should go through just about as hard as it can be pushed, and then clinched on the inside. I need hardly say that these holes must all be pierced at exactly the same spot, or we shall have much trouble. To get out the frames, you have only to lift them, until the loops are raised from the nail heads, and then lift the frame out. The upper story, will not be in the way at all, and we can lift the frames from even the lower story of the Simplicity hive, without taking off the upper one. If we wish to use chaff cushion division boards, we shall have no rabbets to plug up or make tight, but only a plain square board; and the sheet of cloth covering the frames, will go clear up into the corners, anywhere, with no calculations to make for the rabbet, as before. Is it not beautiful? But now we will take the other side.



SCOVELL'S SUSPENDED FRAME.

OBJECTIONS.

The one great objection, in my mind, is that the frames are at fixed distances, and cannot be slid along on the rabbet, nor used interchangeably, unless the combs are pretty nearly of a thickness. This difficulty, since the use of fdn., is not so great as before, for combs built on the fdn., are pretty much alike, or at least they can be made so. The other great objection is, that should the bees get more honey in one side of the comb than the other, which they often do, the comb would be likely to swing out of true. This could be remedied, by having two nails, and a square ended loop on the wire, but this plan, for several reasons, I think untenable. We also might have nails, staples, or a wire "zigzag" at the bottom of the frames, to keep the bottoms in place, but all such contrivances, have been over and over again discarded, for various reasons. I have used them all, and have experimented much, besides hearing from many others who have used them; and I am sure I would prefer just the simple wire loop and nothing more, if I used it at all.

Now we will listen to the inventor; of course *he* is sanguine, for who ever knew an inventor who was not. He has wisely chosen one of the most shallow frames, for his— what shall we call the hive friend Scovell?

I believe that I am the original inventor of the method of suspending comb frames. I have also invented a machine for bending the wires, on which they can be made for a trifle per thousand; a pound of wire makes 800 loops. I will take the liberty of answering the objections in your letter, I run 70 hives last season having double sets of frames of 10 each, and in no instance was I troubled by having the bees fasten the wires to the nails. A few of them did fasten the quilt to the wires and nails when they happened to come in contact with them; but I believe that if the top of the wire was ½ or ¾ of an inch from the top of the frame they would not attempt to fasten it. Nails without heads would have to project too far inside of the hive, in order to keep the frames from falling off; nails with heads can be driven in close, leaving just room for the wire to pass over. I have had hives brought 6 miles this winter on a lumber wagon, without having a frame fastened and not one jumped from its place. I, too, did not like frames at exact distances. But by having a hive that obliges me to place them in, I find that I have the straightest lot of combs that I have ever had. I use no wire at the bottom to keep the frames plumb; if the frame is made true and hung true it makes but little difference whether it is suspended by a nail driven into the end—as hundreds use them--by a projecting top bar, or by a wire loop. You say the wires would get twisted out of shape with awkward handling. I extracted 4,000 lbs. of honey last fall, 70 hives out of 110 having frames with wire loops, and not one was twisted out of shape. It would make this letter too long, for me to attempt to tell you the advantages which I think one gains by using the wire loop. I have a plan for making the hive double walled which I think is just the thing. By to-day's mail I will send you a sample, showing the bend of my wires and the manner of hanging the frame. For large frames like the standard Langstroth, I would use No 18 or 19 tinned wire. My frame is just 7¼ inches deep.

As you have had a great deal of experience with different kinds of hives, I would be glad to have you give my plan a trial and see how you like it. If you conclude to adopt the plan in whole or in part, I will do what I can toward making it a durable hive.

H. SCOVELL.

Columbus, Kan., Feb. 22d, 1878.

OVER 1000 February No's were given away, and now we are obliged to offer 10c. a piece for 'em. Isn't it sad to contemplate? Never mind, send us a Feb. No, and we will send you the 10c.

◆

THERE! I have got all the patent office *Gazettes* right at my elbow, in an Emerson binder, and when anybody tells about his patent, I can read it for myself. The patent on Bingham's smoker is for a machine for "destroying insects by fumigation," perhaps that is all right, but why does he not say something about bees somewhere, if it is a "bee" implement?

◆

OUR friend J. M. Brooks, of Elizabethton, Ind., makes a specialty of selling bees, and his circular is well worth sending for. His bees are all yellow bees and he says you do not have to put them on the window to see the three yellow bands, either. I am well aware, friend B., that if the bees are all a nice yellow, customers are pretty sure to be satisfied; if you can get just as large yields of honey, and have just as good success wintering, as with the darker bees, we shall *all* be satisfied

CYPRUS ISLAND QUEENS.

Having wintered our Cyprian Bees successfully, we shall be prepared to furnish Queens the coming season at $10. each.

These bees were forwarded to us direct from the Island of Cyprus, and as no other bees will be bred in our locality, we can guarantee the purity of their Queens.

That we may give satisfaction to all, we shall fill orders strictly in rotation, no order being booked unless $1. be forwarded.

Safe arrival of Queens by mail or express guaranteed.

IMPORTED ITALIAN QUEENS.

Previous to the arrival of our Cyprians we contracted for a large number of Italian Queens. These we will sell at $4. each—if they can be forwarded just as received. If we are to select the largest and lightest colored or retain them until their worker progeny appear, we must ask $5. each. We will deliver at express office here in box as received, or forward by mail, as requested.

No circular issued. Registered letters, or money orders at our risk. C. W. & A. H. K. BLOOD,
4 P. O. Box 234. Quincy, Mass.

FOUNDATION CUTTERS.

See engraving in March number. Price 10c. Two cents extra when sent by mail.
A. I. ROOT, Medina. Ohio.

500,000

Ten Everblooming 500,000 Roses for $1.00. **Plants and Evergreens** sent Free by Mail. **Catalogues Free.** Address, **I. C. WOOD & BRO.,**
4 Nurserymen and Florists, **Fishkill, N. Y.**

EARLY

ITALIAN QUEENS

FOR 1878.

The increasing demand for our choice Queens has induced us to breed them the present season at the following prices:

Pure Tested Queens in April, May and June, each	$3 00
July, August and September	2 00
Nucleus Hives with pure Tested Queen	5 00
Full Swarm " " "	10 00

A discount will be made on large orders.

Safe arrival guaranteed.

No circulars sent.

☞ Our book, "THE APIARY," describing the nature and habits of the Bee, sent post-paid for Fifty Cents.

4-6inq A. F. MOON, Rome, Ga.

QUEENS! Queens! QUEENS!

I have a few very fine queens, wintered in strong nuclei, that will be promptly shipped to parties in need of such "furniture." All bred from imported mothers. I shall continue the importation of queens from Italy during the season, and sell the same to old and new patrons at live and let live prices.

Address JOHN A. BUCHANAN,
4d Wintersville, Jeff. Co., Ohio.

Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 25
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	9 00
" " per sheet	10

We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

Electrotypes.

We will furnish electrotypes of any of the engravings that have appeared in GLEANINGS, for 25c per square inch. A. I. ROOT, Medina, Ohio.

PRICES REDUCED ON MATERIAL FOR MY **GLASS HONEY BOXES.**
4 C. R. ISHAM, Peoria, Wyoming Co., N. Y.

WANTED—Situation by a bee-keeper. Address, stating terms and requirements,
4 I. M. KAUFFMAN, Smithville, Wayne Co., O.

Try Me!

Italian Queens, Nucleus and full Colonies, Hives, White Holland Turkeys, and Plymouth Rock eggs. Satisfaction guaranteed, or money refunded. Send for prices. WILSON HARVEY,
4-6 Brownsburg, Bucks Co., Pa.

FROM the 1st of April to June 15th, I will sell Italian nucleus colonies of 2 frames, with tested queen, at $4. and will transfer them to any kind of frame desired, by giving me outside measure of such frames. When ordered with my own size frame (13 in. high by 10½ wide in the clear) 3 combs will be sent instead of 2, for same price.
4 JULIUS HOFFMAN, Fort Plain, Mont. Co., N.Y.

SOLDERING IMPLEMENTS.

For $1.00, I will send by mail, a full sized soldering iron ready for use, with a box of rosin, box of soldering fluid, bar of solder, and full printed instructions for use. If sent by express, I will add a soldering board, all rigged, ready for work.
A. I. ROOT, Medina, Ohio.

PRICES REDUCED!!

In Canada you can get anything in the way of Apiarian Supplies. Section Boxes grooved for fdn., *from 5x5x1⅝ down, at 75 cents per* 100 *in the flat, by the quantity.* Wide Frames for sections, in the flat, $2.00 per 100. Hives, 2 stories complete, $2.50 to $3.00, according to what frames wanted. Extractors, $5.00 each, all metal, will take any frame from 18 in. down. Address M. RICHARDSON,
4-5d Port Colborne, Ontario, Canada.

BROOKS BROS' Circular and Prices of Italian Bees sent free.
4-9d Elizabethtown, Ind., Box 127.

1878. FOR SALE! 1878.

Italian Queens.

Propagated in populous colonies, pure and prolific. Tested queen, $2.00. The same grade of queen so soon as fertilized and laying, $1.00. Also full and nucleus colonies. Safe arrival guaranteed.
Address W. P. HENDERSON,
4-9inq Murfreesboro, Tenn.

Queens Wanted,

And Queens For Sale.

I will pay $1.00 for all the Italian queens any of our Southern friends may find it convenient to send me during the month of May. These same queens, I shall sell for $1.50; you are to guarantee safe delivery, and I shall do the same, but nothing farther. I have made this arrangement to answer the great number of questions in regard to buying and selling early queens. In June, I will pay 90c, and sell for $1.25; after July 1st, 75c, and sell for $1.00.

Tested Queens double above prices. All are to be daughters of imported mothers. I will pay 25c for hybrids, and sell them for 50c, if I can. If you send queens, write on the cage whom they are from. All to be sent by mail. Send in April, if *you* will risk them. A. I. ROOT, Medina, Ohio.

E. W. HALE'S

Price List of Bees & Queens for 1878.

1 Colony Italian Bees with tested queen (before July 10th) $14 00; (after July 10th)	$11 00
1 Colony Italian Bees with untested queen after July 10th	9 50
1 Tested Queen..	2 50
1 Untested "	1 00

A discount of 10 per cent on all orders for queens of $10,00 or more. All queens raised from imported mothers. I have made arrangements to Italianize all the black bees within 2 miles of my apiary, and I think *all* my queens will be *purely* mated; all queens will be shipped in rotation, and I desire parties ordering queens, to inform me whether they wish the money returned if the order can not be filled at once.
2-8d Address, E. W. HALE, Wirt C. H., West Va.

PURE ITALIAN BEES.

One swarm, $8.00, five or more, $7.00 each; all in 8 frame L. hives. Are to be sold between April 1st, and May 10th, '78.
4 ALBERT POTTER, Eureka, Wis.

Hives Cheap.

Material ready to nail for standard Langstroth hives. Portico, 10 frames, (beveled top bar) bottom board and cap, in prices ranging from 75c to $1,00 each, according to quantity wanted. Sample hive $1,50. Our *favorite* the "Modest" at same prices.

We are prepared to beat the world on Honey and Section Boxes.

Harbison section, 5 to 10 M. per M.............	$6 50
" " Less than 5 M, per M........	7 50
" " " " 1 "	8 50
Dovetailed sections, any size from 4¼x4¼ to 5x6, 5 to 10 M, per M................	8 00
" " Less than 5, per M....	8 50
" " " " 1 "	9 00

Circulars for 1878 will soon be ready—Send for one.
J. OATMAN & SONS,
1tfd Dundee, Kane Co., Ills.

JUST RECEIVED; CHOICE NEW CROP

Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ½ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.
A. I. ROOT, Medina, Ohio.

COMB FOUNDATION,

45 TO 55 CTS. PER POUND.

For further particulars see our Illustrated Catalogue, mailed on application.
A. I. ROOT, Medina, Ohio.

DAVENPORT GLUCOSE MANUFACTURING Co.

MANUFACTURERS OF SUPERIOR DOUBLE REFINED GRAPE AND MALT SUGAR, CRYSTAL GLUCOSE SRYUP.

Superior Double Refined Grape Sugar for feeding bees, at 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb., by the barrel. Samples of the Grape Sugar will be sent prepaid, by Express, on receipt of 10 cents.
11-1y LOUIS P. BEST, Sup't, Davenport, Iowa.

We will furnish the above delivered on the cars here in Medina, at ½ cent in advance of the above prices. Or we will have it shipped from the factory, at factory prices. Any amount less than 50 lbs., will be 5c per lb. A. I. ROOT, Medina, Ohio.

POPLAR SECTIONS CHEAP.

Harbison sections per 100	$1 00
" " " 500........................	4 00
" " " 1000........................	7 50
Dovetailed sections any size from 4¼x4¼ to 5x6, per 100........................	1 25
" " " 500........................	4 50
" " " 1000........................	8 00

Liberal discount given on large orders. Send postal card for special prices.
Address REINHARD STEHLE,
Marietta, Washington Co., Ohio.
4d Lock Box 193.

Comb Foundation MachineS

$35.00 TO $100.00.

SAMPLES OF FOUNDATION WITH OUR ONE POUND SECTION BOX BY MAIL FOR FIVE CENTS.

For illustration and complete description of how to use the machines see our Illustrated Catalogue of Apiarian implements and supplies, mailed on application. A. I. ROOT, Medina, Ohio.

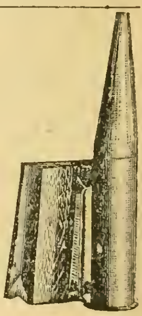
FREE! FREE! FREE!

We will send a sample copy of the **Bee-Keeper's Magazine,** *post-paid,* to any person in any way interested in **Bees** or their **Products,** or in the apparatus so successfully used in modern management. Just send your name and address to
A. J. KING & CO.,
8tf **61 Hudson St., New York.**

SMOKE

AND

SMOKERS.



I am overwhelmed with letters asking "which size smoker is the best?"

Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries* and for *coarse fuel* they are the *best.*

The Standard Is what its name implies and constitutes the *bulk* of *sales* so far.

The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants, it is larger, however, than the improved Quinby.

The first "Direct Draft" smoker *ever sold* has been used one year and sold for one dollar as the gentleman wanted a *large* size.

It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price.*"

They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco* or *sulphur.*

Directions sent with every smoker.

These smokers are a *necessity in modern bee culture,* and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per	Express..	$1 75	Mail....	$2 00
Standard	" ...	1 50	"	1 60
Small,	" . .	1 00	"	1 25

Patented January, 1878. Manufactured *only* by the inventor, T. F. BINGHAM,
4tf Abronia, Allegan Co., Mich.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	“ “ waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
1	Cages, wood and wire cloth, provisioned. See price list	05
12	“ “ “ per doz	50
	“ Larger size double above prices	
20	Candy for bees, can be fed at any season, per lb	15
0	Cards, queen registering, per doz	06
0	“ “ “ per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	“ “ without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	“ “ top only, per 100	1 00
15	“ “ bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $7 50 to 10 00	
	“ inside and gearing, including honey-gate	5 00
	“ Hoops to go around the top	50
	“ “ per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	“ The same, large size, double above prices.	
2	“ 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	“ Vol's IV and V, each	1 00
0	“ Vol. III, second-hand	2 00
0	“ first five neatly bound in one	6 00
0	“ “ “ unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	“ “ ½ doz	5 25
	“ “ ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	20
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	“ “ Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such	
0	as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	30
0	Photo of House Apiary and improvements	25
0	Queens, 50c to $6 00. See price list	
1	Rabbets. Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Screw Drivers all metal (and wrench combined) 4½ inch 10c; 5 inch 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	“ Catnip, good seed, per oz. 20c; per lb.	2 00
0	“ Chinese Mustard, per oz	15
18	“ Mellilot, or Sweet Clover, per lb	60
18	“ White Dutch Clover, per lb	60
	“ Motherwort, per oz. 20c; per lb	2 00
18	“ Mignonette, per lb. (25c per oz)	1 75
	“ Simpson Honey Plant, per package	05
	“ “ “ “ per oz	50
18	“ Silver Hull Buckwheat, per lb	10
	“ “ “ “ peck by Express	75
18	“ Summer Rape. Sow in June and July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
10	Smoker, Quinby's (to Canada 15c extra)	1 50
5	“ Doolittle's, to be held in the mouth	25
	“ Bingham's $1 25; 1 60;	2 00
25	“ OUR OWN, see illustration in price list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of tarletan (almost as good)	50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned per square foot	15
2	Wire cloth, for queen cages	12
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	07

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

25 FANCY CARDS, your name & a *Morocco Card Case*, **10c**; SCHELL BROS., Smith's Land'g, N.Y.

ITALIAN QUEENS from an imported mother. Full stocks, and nuclei for sale cheap, with satisfaction guaranteed. Send stamp for price list.
O. H. TOWNSEND,
5 Hubbardston, Ionia Co., Mich.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	3
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

LANE'S SEED CATALOGUE.

My annual catalogue (a complete garden and floral guide—90 pages) of choice Northern grown seeds—1000 varieties, bulbs, garden and apiarian implements, supplies, agricultural books, bees, queens, &c., &c., is *now* ready—sent postpaid on application.

Address, C. F. LANE, N. W. Apiary &
2tf Seed Warehouse, Koshkonong, Wis.

DAVENPORT GLUCOSE MANUFACTURING Co.

MANUFACTURERS OF SUPERIOR DOUBLE REFINED GRAPE AND MALT SUGAR, CRYSTAL GLUCOSE SRYUP.

Superior Double Refined Grape Sugar for feeding bees, at 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb., by the barrel. Samples of the Grape Sugar will be sent prepaid, by Express, on receipt of 10 cents.
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COMB FOUNDATION,

45 TO 55 CTS. PER POUND.

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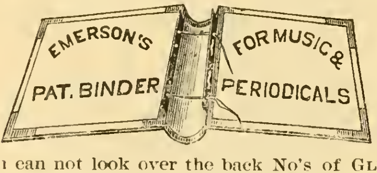

You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years) gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

JUST RECEIVED; CHOICE NEW CROP

Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ½ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.
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2-8d Address, E. W. HALE, Wirt C. H., West Va.

BEE-KEEPER'S SUPPLIES FOR 1878.

Italian Queens—Nucleus and full colonies—Comb Foundation—Hives and Section Boxes complete, furnished on short notice. Ten years' experience in Bee-Keeping and Queen breeding. Satisfaction guaranteed or money refunded. Send for prices.

Eggs and chicks from high class land and water fowls.
2-7 VALENTINE & SON, Carlinville, Ills.

ITALIAN QUEENS.

All bred from imported mothers of my own importation. Dollar queens, $1,00; ready in April. Tested queens before June 1st, $3,00; after, $2,50. Full colonies of Italians from $7,00 to $10,00. Three frame nucleus with tested queen, before June 1st, $5.00, after, $4.50. Comb Foundation, Bee-Keepers' supplies., &c.
2-7d PAUL L. VIALLON, Bayou Goula, La.

FREE! FREE! FREE!

We will send a sample copy of the **Bee-Keeper's Magazine**, *post-paid*, to any person in any way interested in **Bees** or their **Products**, or in the apparatus so successfully used in modern management. Just send your name and address to
A. J. KING & CO.,
8tf **61 Hudson St., New York.**

Hives Cheap.

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Circulars for 1878 will soon be ready—Send for one.
J. OATMAN & SONS,
1tfd Dundee, Kane Co., Ills.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. MAY 1, 1878. No. 5.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more,* 60c. *each. Single Number* **10c.**

MY EXPERIENCE. NO. 5.

ARTIFICIAL SWARMING.

May 26th. I divided the strongest colony in the following manner. The queen, a frame of brood, a frame of honey, and a frame of empty comb, were placed in a hive upon the old stand. The old swarm was carried to a new stand and left queenless. This was done to obtain queen cells to give the queenless parts of other swarms, when I should divide them. I wanted them to build at least 4 or 5 cells; but as most of the bees returned to the old stand, leaving them rather weak, they built only two. I have since learned that in order to obtain a large supply of good queen cells, the colony in which they are built must be strong.

June 4th. I divided two swarms in the same manner that I did the first one. I gave a queen cell to the queenless part of one swarm. The two queens hatched all right, and if they had not been killed by entering the wrong hive, I should have been well pleased with my success; but I will tell you about that farther on.

July 5th. A swarm that had not been divided cast a swarm. It was hived and given a frame of brood. In the afternoon it came out and started for the woods. I followed with a looking-glass. The sun did not shine very brightly, and the best I could do was to confuse them some. We soon came to a small stream. I went ahead and "scooped" up the water on the glass, and when the bees attempted to cross they were met by a small shower. They soon hung themselves up on the branch of a thorn bush, and I cut off the limb and carried them home in triumph.

A few bees remained with the frame of brood, which had been placed in the hive when the bees were hived, and more kept coming in loaded from the fields. I went to the old hive, took out a frame of brood,—upon which was a fine queen cell,—and a frame of honey, and placed them in the hive which contained the frame of brood and cluster of bees. I now cut out all the remaining queen cells, and returned the fugitive swarm to its old hive. After this they stayed at home and worked with a "will." In 20 days I opened the nucleus that was started, in such a peculiar manner, from this hive, and found a laying queen. It was built up, by occasionally giving it frames of brood, and did good work during buckwheat bloom.

In Aug., when I was Italianizing my apiary, there was one swarm that would not accept a queen. I had "fished" the queen out of a ball of bees, caged her a day or two, released her again, fished her out again, and then repeated the operation, until I was tired of it. As my bees were all strong, and I expected another Italian queen in a few days, I concluded to make up a swarm, give the rejected queen to it, and try another queen with the obstinate colony. So I gave them a frame of brood and eggs, to strengthen with, and to let them be building queen cells, that I might not be troubled with fertile workers. I will tell you how I succeeded with this swarm, when I tell you about italianizing. I can best tell you about the swarm that I made up, by quoting from my diary.

"No. 11 was formed, Aug. 29th, by taking frames of brood and honey from other swarms, moving No. 5 to a new stand, and placing this hive in its place. The queen that No. 6 would not accept was caged and placed in this hive."

"*Sept. 1st.* Cut out queen cells, and exchanged places with No. 5. Did this because the old bees would return to their old stand, leaving mostly young bees among which to liberate the queen."

"*Sept. 2d,* Released the queen."

"*Sept. 4th,* Found eggs. Exchanged places again with No. 5."

The only rule, in regard to artificial swarming, that I can give, is "*understand the principles of bee-keeping.*" The condition of the colony, the time of the year, pasturage, use of the extractor, the bee-keeper, in fact, everything, should be taken into consideration. W. Z. Hutchinson.

Rogersville, Mich.,

PAINTING HIVES INSIDE.

MAY IT NOT BE DESIRABLE AFTER ALL.

In the last number of Gleanings, one of your correspondents asks if it would be any advantage, to give new hives a coat of varnish inside, etc. If he will give his hives a good coat of *paint* inside, he will find, they are less liable to be daubed with propolis; they can be more readily cleaned; and, best of all, they will be free from dampness and mouldy combs after a protracted spell of cold or wet weather. The painted surface prevents the absorption of moisture, and causes it to collect in drops, and run down and out. I have for a number of years past, practiced giving my hives a good coat of paint inside, as well as two or three coats outside; and I would now as soon think of letting them go unpainted outside as inside. In fact, if forced to omit either, I would give the paint to the inside.

Some ten or twelve years ago, I was led to doubt the generally received opinion, that bees were averse to occupying a newly painted hive; and that they would not build comb on a painted surface. I then experimented considerably, and even went so far as to paint my frames and honey board, just to see what effect it would have; and were it not for the trouble and expense, I would practice painting these, except where the combs were to be attached. But we cannot *afford* to let the inside of our hives go without a good coat of paint. I wish to have my hives painted some weeks before needed for use; but I have been forced to use them within three days after being newly painted inside and outside, and have never had a swarm leave me in consequence. This matter of painting hives inside is something I have practiced for years, and know it to be of much advantage. Please give it a trial if you have not already done so.

W. W. Hipolite, M. D.

DeVall's Bluff, Ark., April 8th, 1878.

I am inclined to think you are right, at least in a part of your deductions; our bottom boards are always painted, and I have frequently noticed their freedom from propolis, compared with the unpainted ones. If propolis is attached, it readily cleaves off, and this is quite an item. I, too, have demonstrated that bees will work on painted frames, and I have often thought of painting the top bars, to keep them free from bits of wax. Another important item; we use no tin separators against the side of the hive, and, once in a while, the bees will attach a section to the wood, where they would not to the tin; if the side was painted, I am sure it would answer even better than the tin. It just this minute occurs to me, that we might have separators made of wood, if very thin and painted. It is true they could not be made as thin as tin, nor would they be as strong and convenient; but they could, doubtless, be made to answer a very good purpose. Many thanks for your timely hints.

DO BEES SELECT THEIR TREE OR PLACE OF REFUGE BEFORE SWARMING?

SOME years ago, in passing through a wood, I discovered a few bees flying about a tree, some 20 or 30 feet from the ground. Further examination showed a hole in the trunk of the tree near which the bees were flying. I thought I had discovered a *bee tree*, and, with great exultation, hastened to climb a smaller tree adjacent for particular inspection. After gaining the desired position, I saw no further evidence of the expected colony than what appeared to be a good place for one. The bees flying about the hole had disappeared. I cut a stick and thrust it into the hole, to make sure, and out came two or three frightened bees, who left without ceremony. I, however, got a distant view of them, and know they were worker honey bees. Failing to find further developments, I descended, and went on my way, not even suspecting the object of so few bees visiting that particular tree. My only suspicion was that possibly some swarm had previously occupied the cavity, and these bees were searching for unconsumed stores. About two hours afterward, between one and two o'clock P. M., I was returning by the same route, and thought I would take another look at the same tree; and, *presto!* what did I behold? the tree was black for a large space all around the said hole. Another ascent up the adjacent tree was quickly made, and the pleasant sight of a large swarm of bees entering the tree for actual residence was witnessed. They stayed there, too, and collected a large amount of honey, as several persons who partook of it, beside myself, can testify. Now I have no doubt, but that the bees had actually swarmed out, and were still clustering until the hunters which I first saw, should return and lead the entire colony to said tree. Sometimes bees remain clustered all day long, and until next day, before leaving; and this, I have no doubt, because the hunters failed to find a place of refuge sooner. Should the hunters designate an empty bee hive, as suggested by some of your correspondents, of course, the colony would follow them into it, if permitted. But let not your readers deceive themselves with vain hopes; there are ten chances to one, that the hunting bees will select some other hive than yours, unless you give them a hive after they have clustered, and before their hunters return. It is better still, to hive them so soon after settling as not to allow their hunters to start at all. Then, should they swarm out a second time, they will surely settle a second, which might not be the case, if the hunters, after returning from a successful search, find the new colony where they left it, or even on their old stand.

BEES IN WESTERN MISSOURI.

Bees have, in the main, wintered splendidly; they are six weeks ahead of last year in condition. Only those who neglected placing them in winter quarters, in proper condition, have lost, and the most negligent and careless have lost only their weak or queenless colonies. Fruit bloom is now at hand, and new colonies will be expected this month. The prospect of a good honey season is, consequently, first rate.

The fine imported Italian queen you sent me, last October, did not disclose her progeny until about one month ago. They are *beautiful* indeed and work like beavers. Nearly half the workers are Italians already, and, by May 1st, I think a black will seldom be seen. By the way, as you offer to purchase queens so liberally and indiscriminately, I don't see any use of my advertising at all. I think I'll just send you all the queens I have to spare.

S. W. SALISBURY.

Kansas City, Mo. April 3, 1878.

Thanks for your facts given; I think your deductions correct. In regard to purchasing queens indiscriminately; I know my offer is leaning rather that way, but I cannot see any other way of accommodating all parties, and getting the business into any kind of a regular channel. I shall test a great part of the queens, and my customers will test all of them, and he who fails to do business on the square will run the risk of being shown up.

FRIEND ROOT:—A. F. Conaway's communication in April GLEANINGS reminds me of an experience I had last year. About the first of June, as I sat writing in the director's room of our bank, I noticed bees on the windows, and, after getting up several times to let them out, discovered they came from the grate, and bending over heard a loud buzzing in the chimney. I supposed a swarm had come unnoticed, and taken up their abode there, but was surprised an hour or two after, to find that they were gone. Supposing it might be a reconnoitering party, I set a hive with two or three sheets of comb on the cap of the chimney, and about a week after a swarm came and took possession. I have known several similar incidents, indicating that bees, sometimes at least, select a place before swarming.

This I scratch off hastily for your *private* eye.

JAMES E. DEAN.

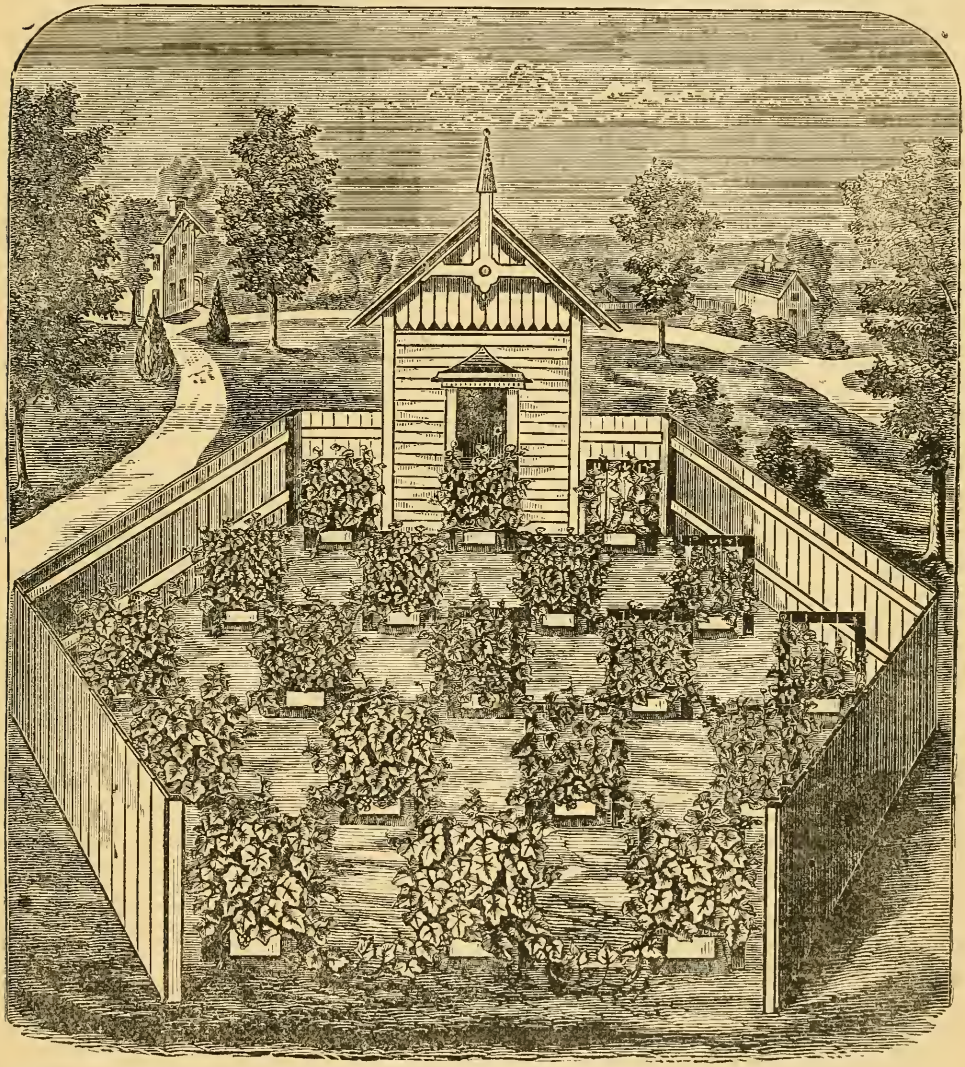
Fishkill, N. Y., April 3d, 1878.

Friend D., I have taken the liberty to publish this in spite of your concluding remark, and plead, as an excuse, that these facts are very valuable; they point plainly to the idea that bees often, if not always, look out a home before, and sometimes many days before, they swarm. By having nice homes provided for them, I am sure we can catch a great many runaway swarms, and where we most want light now is in relation to preparing these homes so as to attract their notice, and prove most acceptable to them. Who will succeed, this season, in arranging a hive so that new swarms will go into it? I do not know but that I could afford to offer $1000 for such a device, but the trouble would be that the invention, when it came, would prove to be the result of the investigations and experiments of a great number of people, as is usually the case with all that is valuable.

Our poultry friends are all familiar with the queer behavior of a hen, when she is hunting a place for a nest; she is not looking for food, and, in fact, she will hardly notice corn when thrown to her, but she looks about in a kind of an inquiring way, and, as she tips her head meditatively on one side, while she considers this location and that, it seems almost as if she was endowed with powers of reasoning similar to our own. Well, these scouting bees that are to be seen hovering around about swarming time, —just watch them yourself, and see if you can fix a hive so it will please their fastidious little heads.

A GRAPE VINE APIARY OF 19 HIVES.

I DID not quite like the hexagonal apiary that our artists drew for the A B C, so they have made another which we show you above. In the foreground, you can see the plan by which we get strong grape vines, just where we want them, and in a much shorter time than they would grow in the ordinary way. The fence is not really essential, but I think it pays all the expenses of building, by keeping off cold winds alone; and, if it is 8 or 10 feet high, as it should be, it is quite a protection against thieves, as well as dogs, chickens, &c. The bees may be wintered in the house, if that way of wintering is preferred, or they may be wintered on their summer stands, and the house may be used simply as a honey house. Make your apiary nice, neat, pretty, and tidy, and then keep it nice, neat, pretty, and tidy, all the time, *whether you feel like it or not*. If you find it is getting weedy and disorderly, *make* yourself "pitch in" and straighten it up, and you will get happy by and by. There is no excellence without great labor, and there is much discontent with laziness. I guess I know, for I have tried both ways, and it is ever so much more fun to have a nice apiary, all the work of your own hands. I wonder if any of the rest of you have made this discovery. Now, about those grape vines; they look very well, when nicely tied up to the wires and posts, especially, when loaded with ripe fruit; but, if you neglect pinching off the tender shoots, and training the young tendrils in the way they should go, they will, in a few weeks, get to be about as distressing as anything I know of. "A thing of beauty is a joy forever;" especially, if you have to get up at 5 o'clock every morning, to *preserve* its beauty.



A GRAPE VINE APIARY OF 19 HIVES, ALSO "SWARMING" THE GRAPE VINE.

ONE PRICE, AND NO DEVIATION.

DEMAND AND SUPPLY.

NOW Mr. Gleanings, I want to suggest that you write an article for *Our Homes* explaining why a poor person has to pay 25 per cent more for his supplies, than one who is able to buy by the quantity. Thos. F. Wilson.

Milan, Ind., March 10th, 1878.

I hardly see, my friend, how it should come within the province of OUR HOMES, this question of demand and supply. If you were to come here and order a single section box of some odd size, we could not well afford to make it for less than 25c.; should you order 100, we could make them for perhaps 3 cents each; if 1000, at 1 cent each. Now if you were rich, as you express it, had a thousand colonies, and should order 50,000 sections, all at one time, I could get very nice machinery for doing the work, set all the idle boys and girls in our town at work, and make them without trouble for a *half* cent each. This same feature is manifest in almost all kinds of business; the larger the order, the cheaper can the work be furnished. Suppose we have the hives all made up ready to sell. The man who buys 100, should have them at a less price than the one who buys but a single hive. It is often as much work to sell a single hive, as to sell 100. When one of our customers keeps extractors for sale, and advertises them, we sell to him at a less price, even if he buys a single machine, because he must have some pay for his services; and this is a recognized law in trade, the world over. The mere fact of a man's being rich, does not give him better prices, but it is the quantity he buys; or at least such should be the case.

One other point comes in just here: friend Doolittle has advertised Gleanings for 75c., and every year somebody wants to know why I cannot furnish it at 75c. as well as he can. Some have sent 75c., saying if we could not send it a year at that price, we must return the money. Of course the money was returned, for I had no right to charge you $1.00 and then let another have it for 75c., even if others did do so. To illustrate: a friend works hard and gets a club of 10; I have worked hard to get up a good Journal, and he, to introduce it. Should not the $10. be shared between us? I think so, and I feel it is about right that my friend should have $4. of it for his trouble. Very well; now if he sees that he can get many more names by under-selling me, that is taking 75c. for single names, can I prevent his so doing? I do not know how I can, and yet I cannot do the same, for 15c. would be such small pay, that people generally would not try to get subscribers for so small a margin. I might reduce the price to 50c. in clubs of 10, but then some one would undersell again, and—ad infinitum. Now is it not best for me to stand to my advertised prices and conditions? Otherwise, I would soon be a "jockey."

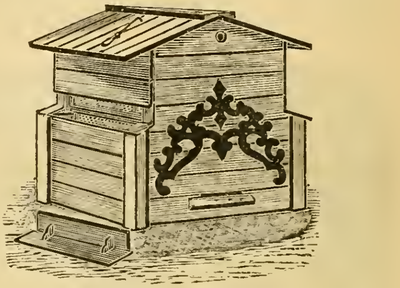
Poor people oftentimes pay more for goods, because they buy in small amounts at a time, when by a little forethought, they could just as well buy in quantites, and that too, without having any more money.

ALMOST THE $25. CHAFF HIVE, AGAIN.

WHAT A NATION OF INVENTORS WE ARE.

IN accordance with your kind offer I present the following plan for a two story chaff hive, hoping that it may meet the present want.

The lower story is to be about 6 in. wider than the upper, inside, thus giving more room for section boxes at the *sides of the brood*, which I consider an advantage in itself.



FOSTER'S CHAFF HIVE.

To remove the lower frames, take out the trough shaped piece which is beveled on the upper edge to fit water tight under the side of the upper story. The first frame or two can be lifted directly out. Slide the others along the rabbet to the opening. By means of the wire hook the lower frames may all be removed without even taking off the cover, while with a few frames out above, they can be handled *easily*.

I think there is no necessity for chaff at the *sides* of the frames. If you make your division boards 4 inches thick, they will answer every purpose, and give you room for *thirty-two extra section boxes.* However, my plan will work with chaff at the sides.

I think I have improved a little on your division boards, especially where they are made 4 in. thick. I nail my thin side boards, the size of my frames, to the top bar, which is 4 in. wide, and as long as my frame top bar. I tack a strip of tin across, at the bottom, to hold the side boards the proper distance apart. The cloth or duck is tacked to the *edge* of the side boards, by turning under the edge, laying on a thin strip of wood or tin, and tacking through both. I leave the cloth ¾ inches wider than the space, and full at the corners. Fill with chaff when the cloth is nearly on. These boards fit the hives better and are more easily moved, because they have the advantage of the elasticity of *all the chaff*. They are also more easily made. Oliver Foster.

Mt. Vernon, Linn Co., Iowa.

Well, my friend, you certainly have struck on something very ingenious, and were it not for some objections, I should adopt it at once. The possibility of being able to remove all the brood frames, without disturbing the section boxes at all, would be a fine thing, as it would also, when the hive is used for the extractor. Side boxes, and top boxes, would be perfectly accessible, and we could remove either without interfering with the other.

Now, for the objections. We have three places to be covered, and we must have three well fitting covers, to exclude rain, snow and frost. All three must be closed by some kind of a cushion, and the cushion should be protected by some kind of enamel sheets. These will make trouble in opening and trouble in closing, and it will be almost impossible to keep frost out as securely as we do in the usual chaff hive. It may be that these disadvantages can be so far overcome, as to have the advantages over-balance them, but I am much in doubt in regard to it. One roof could be made to cover the whole, by making it a very deep clumsy affair, but this brings in other complications. I can not think of adopting any cover, that I can not readily lift off with one hand.

One object I have in giving these ingenious devices, even if I do not advise them, is to prevent the unscrupulous from making capital out of them, by pretended patents.

The objection to your division board, is that the thin lumber will warp by the dampness of the hive, unless it is securely cleated. In view of this, I have as yet found no cheaper or better way, than to make them as I have directed.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

THERE are two persons, whose names, for aught I can see, I shall have to keep standing in this department all the time. It takes too many postal cards, and too many back numbers, to give applicants the particulars of their different games and dodges. Both have been shown up every few months, for the past five years, and yet they find new victims, year after year, among those who are just commencing. These two notorious thieves and swindlers, are Mr. N. C. Mitchell, of Indianapolis, Ind., and Mrs. Lizzie Cotton, as she calls herself, of West Gorham, Maine. Of the former, enough has been said, and enough of his letters, and those of his victims have been printed. Both of them receive money, but it is only at rare intervals, that they return any equivalent, of any kind. We sent Mrs. Cotton money for a wonderful book that told how to do great things with bees, over two years ago. She acknowledged the receipt of it, and has promised several times to send the book or send the money back. Others have sent her money for hives and other things, but with just about the same "luck." They never get any back again. She too, like Mitchell, deals in wonderful receipts. In a flaming circular full of falsehoods, without date, but I suppose sent out recently, for it looks new, she winds up with the following:

> If any of the patent bee hive fraternity doubts my ability to perform what I promise with my hive and system of bee management, I invite them to deposit one thousand dollars with some responsible beekeeper, and I will deposit a like sum, and if I fail to verify my statements after a fair test, I will forfeit the amount deposited; but if I prove my statements true, then the amount deposited shall be forfeited to me. Now let these patent bee hive speculators cease their slander against me, and if they believe I can not perform what I promise with my controllable hive, and new system of bee management, let them deposit the money and test the matter. I challenge them to a trial.

All right, Mrs. Cotton, we will furnish the $1000.00, but one of the conditions must be, that you are first to pay back our hard earned money that we sent you. I rather think I would prefer to have that part "adjusted," before we go into the larger speculation. Mrs. Cotton claims that her hive will make the bees give 380 lbs. of comb honey in a season.

She says:

> "For many years I have written articles on bee culture, for the leading Journals, and my success with bees has become known throughout the country."

We are only too well aware of it Mrs. C., and the worst feature of it is that many of these "leading journals" do not know enough about bees to know that your unreasonable statements, are only a bait to induce the unsuspecting to send to you for more information, that you may beguile them out of their money. Still farther we read:

> In 1874, I purchased a stock of bees in an old box hive. They had not given their owner a single dollar in profit for years; some seasons they would not swarm or make any surplus honey, but cluster idle on the outside of the hive in large numbers, while in other seasons they would swarm and fly away to the woods. I changed these bees in April to my controllable hive and they gave me that season over forty dollars worth of surplus honey in glass boxes, and they have done as well or better every season since, and are now in a healthy, prosperous condition.

It was the hive that did it, and nothing else *sure;* for, else, why did they not give such results in their old hive?

I tell you, my friends, it is not the hive, that secures the honey; it is the bee-keeper. You might as well expect a fancy pocket book to make you rich, as that you could have a hive that would insure, of itself, a profitable crop of honey.

In the *A. B. J.*, for both March and April, a Mr. William Thompson, of Detroit, Mich., advertises a patent hive with the following statement:

> This is the cheapest and best two-story hive ever invented, and merited the $25.00 premium offered by "Novice" in GLEANINGS.

As our readers are all well aware that no hive has ever yet merited the $25. according to the offer, I can, with justice, call Mr. Thompson a humbug and swindler. If the editor of the *A. B. J.*, never reads the advertisements sent him, we can, I presume, excuse him on that ground. As many other publications allow their advertisers to tell all the falsehoods they please, providing they pay the advertised price per line for the privilege, I presume we had better not be too severe on friend Newman.

On page 104 of the April *A. B. J.*, mention is made of making fdn. on linen or a similar fabric, and the editor says a patent has been applied for on the same. The idea has been suggested in the Journals at different times during the past 10 years, and a fine kind of tracing linen was used in Germany, almost as long ago as the fdn. was invented. My own experiments in the matter were given in the March No. of GLEANINGS, over a year ago. I would let this all pass, without a word, but the blackmailing business seems to be breaking out with a new vigor of late, and if GLEANINGS has any influence at all, it shall be used in trying to check this fashion of patenting well known devices, and of obtaining money from the unsuspecting by threats of prosecution. Right in my drawer, is a letter narrating how the man Gillespie, the one who claimed a patent on all two story hives, is obtaining money from those using the metal corners, claiming that *he* has a patent on them.

On page 130 of the *A. B. J.*, a correspondent intimates that I put Mitchell in the humbugs and swindles, because he charges $10. for a right to use his hive. I fear my friend forgets himself; it was because Mitchell received money for which he returned no equivalent, and demanded money from those who used a sheet of duck over the frames, claiming he had a patent on it, and such like work. The editor of the *A. B. J.* will tell you the same, I think, even if he forgot to say as much, in a note at the end of the communication.

BEWARE OF LAND PIRATES WHO DEMAND MONEY, ON THE GROUND THAT YOUR HIVES ARE AN INFRINGEMENT ON THEIR PATENTS. I confess it is a hard matter for me to deal with this class of people in a christian like way, and, if I am too severe, and an excuse is needed, I hope the outrageous falsehoods that they tell, may be taken into consideration. I give below the letter I have alluded to above.

You will find enclosed 75 cents, for which please send me 100 metal corners for bee hives. I would like to try them, if we can be allowed to use them here. A "great" bee man who claims the patent right for them, one Gillespie, has been here lately, and sold the right for this (Johnson) Co. We do not wish to infringe on his rights; but if we can use them, we will probably want more, as my husband is a carpenter, and makes a good many hives.

MRS. S. B. DOBYNS.

Columbus, Mo., March 25th, 1878.

At one place, these fellows claim they have a patent that covers all two story hives, and get their 5 or $10.; at the next, they claim a patent on the sheets of cloth used over the frames; again, on a cloth cushion; and now, the notorious Gillepsie has the brazen impudence to claim the metal corners. It is he who collected large sums of money from all who used two story hives, claiming that his common sense hive covered all. (See page 133, Vol. IV.) The common sense, the adjustable, the cottage, and several others, are being "run," just now, on this same plan, and we are constantly receiving letters asking us, if the agents can enforce their claims. The whole story is such utter nonsense, that one wonders people will hand over their money, on a claim so ridiculous; but the fear of law suits, which they always threaten, is so great, that many hand over the money, without even stopping to question. The papers and printed documents which they show, purporting to come from the patent office, are the most barefaced frauds. The *A. B. J.*, by giving place to their strings of false statements, as in the item last mentioned, is lending itself to their nefarious work. If the editor is doing this through ignorance, I can think it scarcely less excusable. It is his business to keep posted. If their patents are valid, let them prosecute me; for I am probably the greatest infringer. As a matter of course, they will try to injure me in every way possible, but I will freely forgive this, if I can in any way, be the means of stopping them from robbing the innocent and unoffending people.

There is one thing more, and as it is not a very pleasant matter, I would rather let it alone entirely; but I think it best to speak plainly, and have a fair understanding. In 1872, J. P. Parker, of Alamo, Tenn., sent J. W. Winder, $30. for two imported queens, according to his advertisement. The money was acknowledged, and the queens promised at different times, but after a year or more, friend P. demanded either his money or queens, and threatened to have him published, if he did not send it. Mr. W. replied, if he made a fuss about it, he would never pay him a copper, which threat he has faithfully carried out. A few weeks ago, Mr. Winder sent me an advertisement. I wrote back the reason why I could not accept it. He replied that he was much surprised that I should bring up a matter of so many years ago, that he had been unfortunate and lost his property, and that the way of the world was to give a man a push, when once down. Perhaps he is right, but how about the $30. that friend Parker sent him in good faith? Is it not hard to save money to send off for queens that you need badly, and then be delayed and annoyed in this way, finally losing it altogether? Mr. Winder is not the only offender of this kind, and it may be a common thing for a man to fail to pay his debts; but so long as you choose me to conduct this journal—by your patronage—no one shall have space as an advertiser who refuses to pay an honest debt; and if he fails through bad management, he must take the consequences. I do not think it right that innocent people should suffer because other people are careless, any more than can be avoided; and if you will keep out of debt, you will never become bankrupt. I know many of you will call this course very harsh and hard, but if Mr. Winder will do his best to pay friend Parker, I will pay half of the $30. myself.

REPORT FROM TEXAS.

HOW BEGINNERS GET ALONG.

PLEASE hurry up the last bill of goods ordered, especially the comb fdn., as I have used up the 10 lbs. sent. I like it firstrate. It is now full of brood, and I need more to build up my young swarms, and those that I have divided. My first natural swarm came out March 16th. My plan of dividing is as follows: I have a large musquito bar made about eight or ten feet square; drive four good smooth stakes into the ground, and leave them 7 or 8 feet high; put my bar over them, smoke my hive, carry it under, and go to work. Then I am not annoyed by robbers, which are pretty bad at this season. (It is a good place to transfer). I look for the old queen and leave her with about ⅓ of the bees, and half of the frames in the old hive; place the new hive where the old one sat, and the old one on a new stand; put two frames of comb fdn. in each hive, and division board. In 6 days, (if they are black bees) I open the swarm with no queen, cut out the queen cells, leave them two days, then look over my Italians, find a queen cell, and insert it. After this, I open them every few days, and spread the frames, and fill up, and, in a short time, I have all my hives full of frames and bees. I have been busy for several days, opening hives and cutting out queen cells from those that I do not want to swarm. Several swarms are working now in boxes, with 8 frames full of brood.

If any of the readers of GLEANINGS can make a better report, at this date, I would like to hear from them; especially from those that have just commenced, two years ago, as I did. I wintered 51 swarms on summer stands, and lost but one. I will just say that it is of no use for a lazy man to think of bee-keeping, for, to succeed, and keep ahead of his bees, he must be up and doing all the time.

J. W. ECKMAN.

Fort Bend, Texas, March 28th, 1878.

REPORT FROM A YORK STATE BEGINNER.

HAVING done so well last season, I am going to give an account of my bees, since I commenced to keep them. In the first part of July, 1875, I purchased a swarm of bees, and had them hived in a L. hive which I furnished. They did nothing but partly fill their hive with comb and honey, and I thought I could not winter them; but they came through all right. I also purchased, in Dec. of 1875, a colony in a box hive, and they came through in excellent condition. So I had two colonies to commence the season of '76 with. I transferred the colony in the box hive. I used 6 lb. caps for honey and I found it was hard work for me to sell it.

REPORT FOR 1876.

CR.	
57¾ lbs. of honey@17 and 18c	$10 06
2 new swarms@$5.00	10 00
	$20 06
DR.	
2 swarms bees	$ 7 50
Italian queens	6 76
Incidentals	13 94
	$28 20

In the fall of '76, I packed my bees in chaff, "a la Townley," and they not only came through the winter, but in spring were as strong as they were in the fall. In April of '77, I purchased of A. I. Root, 10 colonies of hybrids. I then had 14 colonies to commence the season of '77 with. They commenced to swarm June 3d and continued till July 5th. I put on sections the 18th of May, and did not take off any full ones till June 18th. I took off all sections the 14th of Aug.

The 1 lb. sections of honey sold like hot cakes. Some of the bee-keepers here said, I would get sick of the small 1 lb. section boxes, because they were too small and not glassed; and grocers would not have them in the store because everybody would be sticking their fingers into it, and they could not sell them either. But it turned out to be just the opposite to what they said. When people find out that they pay 25c. a pound for glass on the old style boxes, they will take a section that is not glassed in preference to the other.

REPORT FOR 1877.

DR.	
10 colonies of bees	$73 75
Sections, frames, separators, &c	51 85
Lumber	45 73
Hired work	10 87
Barnes' saw	41 65
Incidentals	24 05
Total	$247 90
CR.	
1284 lbs. honey@18 and 20c	$239 70
4 " of beeswax@26	1 04
1 quart bees sold	1 00
10 new swarms@$5.00	50 00
	$291 74

FRANK SALISBURY.

Geddes, Onondaga Co., N. Y., Feb. 4th, '78.

PUTTING CIRCULAR SAWS IN ORDER WITH AN EMERY WHEEL.

I SAW your instruction for filing circular saws, and, as I sharpen saws differently, I will give you my plan. I think if you give it a fair trial, you will not do any more filing. I have not used a file, except on fine cut off saws, in six years. Make the teeth not to exceed ½ the length that they are when new, use an 8¼ inch round edge emery wheel, grind the underside of the tooth on a line ⅓ of the distance from outside to center, and, with a little practice, any good mechanic can grind a saw to an edge as perfect as it can be filed, leaving the throat perfectly round. It will clear much better, and, the teeth being so short, it will not dodge in knots, or follow the grain as long teeth do. You will save, at least, one-half the time spent in filing, and one wheel will save $25 worth of files.

JOHN VANDERVOST.

Laceville, Pa., Feb. 22nd, 1878.

Many thanks, friend V., for your very valuable suggestions. We have used emery wheels more or less for the past five years for sharpening saws, and sometimes we can get the saw to cut beautifully with just the emery wheel alone; but, for some reason or other, our hands generally get back to files unless the saws need gumming. I think your estimate of the comparative expenses rather strong. We have not used the teeth so short as you advise, but I have no doubt you are right, if you can obtain durable wheels, small enough for the very fine teethed saws used for cutting smooth, fine work. The wheels are very apt to draw the temper of thin saws, unless they are kept wet with water, and this treatment is very apt to make the wheels crumble and break, when so thin.

FREEZING BEES.

WHO IS RIGHT?

I MAY get up a little "reaction" with you, by calling up a matter upon which you and I differ materially. In reading up back numbers of GLEANINGS, I find in January number, 1876, you claim that a bee that has been frozen never will come to life. Yours is a reply to a letter of J. L. Davis, Holt, Mich. I see one difficult point to solve, as in the case of a drunken man. When is a man drunk? when he reels and staggers, and occasionally falls in the gutter, and is *possibly able to get out*, or must he be "that far gone," that he can stir neither hand nor foot, to be considered drunk? and in the case of a bee, to consider him frozen, must he lay out all winter under the snow, one month, a week, or how long must he lay dormant to consider him frozen? The case I am about to refer to is this: I set out 2 swarms of bees Feb. 28th, and from a "Bee Journal" I keep, I find the following record:

"Set out the bees in the afternoon; they had a good fly for about two hours; it bid fair to be a very cold night, so I covered them up with rugs and blankets."

There was snow, water and clay mud in the yard where they were kept, and many bees fell in the snow and water and did not get back into the hive that night. My next days record is as follows:

March 1st.—"It froze hard enough last night to nearly hold up a 1100℔. horse; a light horse would have traveled without breaking through until 9 or 9:30 A. M. This day I went to Geo. E. Walkers and to Pewomo. In the morning, by my instructions, the little girls gathered up several handfuls of what was supposed to be dead bees which had fallen on the ground or snow the afternoon before, and had lain out over night through the freeze above mentioned. The bees were brought in the house, and in 1½ hours ⅓ or ½ of them came to life and were carried back to the hive. This may seem incredible, but the wife, children and neighbors are willing to vouch for the fact."

The above is a copy of the circumstances as recorded at the time. I can't help saying that these bees were *frozen*, being out through a night when the ground was frozen hard enough to hold up a horse; and they surely came to life. Now will you admit that these bees were frozen? or was I drunk? that's the question.

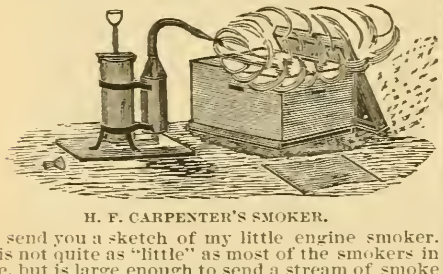
O. R. GOODNO.

Carson City, Mich., April 5th, 1878.

I guess we are none of us drunk, friend G., but we are sometimes a little too positive, and, if that is my fault, I beg pardon, and will try to be careful. I know that bees will revive after having been left out during a frosty night. but I have never been able to revive one. after it had been out one day during a zero freeze, nor have I been able to revive a bee that has been out as many as 4 days even during very moderate weather. It is my impression. that they starve to death just as quickly, in this state as in an animated one. To sum up, I would "suggest"(?) that bees will starve in about 48 hours: that they will also freeze *dead* in a zero temperature, (perhaps less: but we know they will stand enough to "hold up a horse and revive") in a few hours. Friend Davis suggested that they would revive after a zero temperature for over a week, outside the hive. but, as no experiment has yet corroborated this. I still think he put it a little to strongly. What facts have others to bring forward? I once thought I could winter bees very cheaply, by spreading them out on a shelf, and keeping them just "cold enough." That speculation was a failure, although it will work with ants, frogs, and animated nature of that class.

SMOKERS.

A FEW days ago I thought all the inventive genius of our bee folks was concentrated on the chaff hive question, but of late it seems about equally directed to the subject of smokers. and the number of sketches. and models, that have been sent for my inspection and approval, would be sufficient to start a shop almost. The one our artist has pictured below, I give just as a curiosity. and I have no doubt our friend can not only drive the bees clear down to the bottom board, but I should think they would get clear out of the hive as shown in the cut. if that vicious looking handle were worked many times. *I* should not want my bees abused that way I fear, friend C. A short time ago I attempted to open a hive at a neighbor's, but found them cross hybrids, and so looked about for something to smoke them: the handiest thing seemed to be a bit of cord, but little larger than candle wicking. and with this lighted, I drove them back so that I had all the opportunity I wished, for making a full examination to see if they lacked stores for winter.



H. F. CARPENTER'S SMOKER.

I send you a sketch of my little engine smoker. It is not quite as "little" as most of the smokers in use. but is large enough to send a stream of smoke that will blow the bees down into the bottom of the hive if need be. I can send a stream of smoke into the air the distance of 10 feet without any very hard pressure on the handle. Try one and you will be surprised at its force. I should make it still larger in place of smaller. If you think you can make any use of them do so; make and sell as many as you please. No patent on them.

The bellows is 20 in. long, and 4 in. wide across the top. It rests on a board 12 in. wide by 20 in. long. The board lies on the ground, so that you can put your foot on it, when you wish to operate the bellows. The fire pot is a half joint of 6 in. stove pipe, open at both ends. The spout is made of leather, so as to be handled over the hives. The end of the spout is movable, so as to turn the smoke anywhere. Now you will be ready to say that the leather spout will burn. So it will, if you let the fire blaze out at the end of the leather; but, as I use corn cobs for fuel, I can fill the fire pot full, and it will last half a day, and do all the smoking that I want, without the trouble of making fire at every other hive. At the very time, when I most want smoke, the little things are apt to be out, or clogged with ashes and dirt. This smoker can be carried by the handle, and set down anywhere in the yard, and the fire will burn very slowly, as the handle stays just where you leave it.

H. F. CARPENTER, Polo, Ill.

About smokers; can't one be made to be blown by compressed air in a small tin receiver? The air to be released by pressing a spring valve with the finger? A small pump can be attached to one side of the chamber to work up the pressure when it gets low. I think if you will walk around the stairs a few times on this, you will get it.

JAMES E. DEAN.

Fishkill, N. Y., April 3d, 1878.

I long ago thought of compressed air for smokers. but feared it would require "too much machinery." There is one item that. I think, would be valuable about it; we could turn on a very small amount of air, by a suitable cock, when we wished a fire started. or when we wished only a very little smoke. I fear the size of the reservoir would be the greatest objection; it would also require a very strong pump, to condense the air, and this would be expensive. Notwithstanding all this, I think the plan simpler than that of using a clock movement with a spring, to blow a fan, as has been so many times suggested.

A MINISTER'S EXPERIENCE.

ABOUT six months ago, I saw your advertisement in a magazine, and immediately sent for a specimen of GLEANINGS. It came to hand at once, and was eagerly read. It was just what I needed. I am a minister, but find I need some out door exercise, especially during the summer season. During the winter I have my hands full; hence this business promises to answer the purpose exactly. About the first of August, I purchased two colonies of black bees in common box hives; these swarms are now in good condition and quite strong. I also purchased a late swarm which would have died of starvation, if they had not been fed. I gave them about one dollar's worth of sugar in syrup, and they also are in good condition; so I have already made a start. I intend to transfer and italianize as soon as I can.

I have gained some little *experimental* knowledge already. I went, soon after purchasing, to bring home my bees; but, having to bring them in my buggy, could only bring one hive at a time. I took with me some wire cloth to tack over the bottom, &c. I found my man at home, who, by the way, claims to have quite a fund of knowledge in bee culture, having *tested* the question of Italian supremacy, and written "*Tekel*" (see Daniel 5; 27) on every Italian hive. In order to prepare them for removal, he turned the hive upside down, expecting to place the wire cloth over the bottom and tack it down, before the bees found out what was going on; but the bees, having about as much wit as the veteran bee man, sallied forth by hundreds, and, finding the cause of the sudden upsetting standing over them, proceeded to execute summary vengeance on his head, &c., &c. Notwithstanding the darkness, the bees found a rent in his shirt sleeve, and, entering in by dozens, soon made him fly, while we stood at a little distance, "laughing in *our* sleeve." At last, we had to take the matter in hand, and soon had the cloth fastened over them;

however, we didn't laugh much when the bees began to "pepper" us. When we went for the next hive the "bee man" wasn't at home. We lifted the hive just sufficiently to let the cloth glide beneath, tacked it around the edges, turned it upside down, lifted it into the buggy and got home, without a single sting. I don't think I'll hire that man to take care of my bees.

Not long since, I was looking about my hives, and accidentally struck my foot against a board upon which the hives were sitting; out they came, and, as I didn't retreat immediately, I got a "bite" above the eye which closed it for a few days. I don't think I looked very clerical the next day, as I drove to New Philadelphia, to meet the President of Wittenberg College, to take him home with me.

Don't you think the Simplicities will soon be discarded for the chaff hive? L. S. JONES.

New Philadelphia, O., Jan. 22d, 1878.

Your speaking of stepping on the board on which the hives sat reminds me that I have had many similar experiences, and for this reason have discarded every thing to set bees on, that projects beyond the bottom board. The sawdust gives no jar and neither yourself nor the bees are annoyed, if you walk about among the hives ever so much. Your friend who turned over the hive calculating that he could move quicker than the bees, was almost as unwise in his calculations as our friend of last month who was stung so badly that he fainted.

I do not think the chaff hive will ever take the place of the simplicity, because the latter is almost a necessity *with* the chaff hives. Working with new swarms and nuclei, shipping bees, and many other operations, require a hive light, plain, and simple, and when we get them built up to "rousing big stocks," all ready for comb honey, then we want a chaff hive to put them in.

THE A B C CLASS.

YOUR A B C, received. It might be Greek for all the good it does me. I know nothing of bees: have hardly ever seen a hive: and all talk of "hybrid queens," "neucleus colonies," etc., is totally incomprehénsible to me. But wishing some honey for family use and for sale, and seeing that you advise to commence with two hives, I enclose a P. O. order for $26.00, for 2 Simplicity hives and bees, in the desperate hope of finding out from *the bees* the first principles about themselves: for the bee books don't even tell whether a hive requires one queen or twenty, and I am sure I don't know myself.

I don't think I require any "winter packing" whatever that is.

I have nice grape vines, and will prepare sawdust as directed in your A B C.

And now, Mr Root, as I hrve bought two hives of you, I do not think it will be imposing on your or your clerk's *valuable time*, to ask as consise answers as possible to the following questions. Please answer just as if you were talking to one who never saw a bee. Any hints will be thankfully received.

How am I to treat the bees on their arrival to set them to work?

Set them on your sawdust pile, and fix it up nice around the entrance, and then move the hive back and let them fly, as directed last month.

How long before I can have honey to eat?

I cannot tell you when you will have honey, any more than I could tell you how soon you would have eggs, if you bought a lot of poultry; but if you take care of them, and spring flowers are in bloom, you should have honey almost as soon as you get them. In this locality, if I should purchase a colony of Italians during the white clover bloom, I should expect them to give me some surplus honey for the table inside of a week; if taken with the extractor, you might have some the next day after they arrived.

Am I in danger of having bees decamp immediately?

You are in no danger of having a full colony decamp, unless they swarm; and they will not do this, as a general thing, until they get their hive full of honey, and full of bees. You are to get acquainted with them, and keep acquainted with the condition of affairs inside the hive, and then you can take away their honey, and give them more room when occasion requires it. Very few bees are lost by swarming where the apiarist is prompt and on hand.

Do I have to shut the bees in, on the apprcach of cold weather? We have flowers every month, but frosts in Nov., Dec., Jan., and Feb.

Never shut the bees in the hive under any circumstances, unless you are obliged to, to move them.

How much honey must be left in the hive for winter? GEO. WOLF.

Jacksonville, Duval Co., Florida, Apr. 1st, 1878.

Enough honey must be left so they will not starve; if you will tell me how much hay and oats your pony needs, I can tell you how much to leave for the bees; ordinarily about 15lbs., but 20lbs. will make it safer. Look at them occasionally, and see that they have a plenty.

VALUABLE SUGGESTIONS.

FASTENING IN FDN., SEPARATORS, ETC.

A SIMPLE suggestion is sometimes of very great value; as, Carlin's suggestion of a fdn. cutter. Your suggestion of that "all wood frame" that "Novice" made while "walking around the central stairway," has been of more value to me than the price of GLEANINGS for a year. I now make my frames of lath with little or no waste, as good as I could wish, and much cheaper than ever before. With a slitting gauge, I take off ⅞ of an inch, which makes the sides and top pieces; the narrow strip makes the bottom piece. I put my frames together, then with my knife, I cut off the corners of the top piece and sides. This makes the triangular piece that the bees follow so well in making their comb.

Excuse a few suggestions from me. To insert fdn. into section boxes; lay the grooved piece on a narrow strip of wood on the table, press the sides down on the table, (no danger of splitting it) insert the fdn., then slip it off the strip, and press the middle of the two ends down to the table, and it is ready to be put together.

To insert fdn. into frames; why not make a saw-cut through the top piece, then push the fdn. through this cut, and clinch it on top?

Why not use enameled cloth for separators between section boxes, in place of tin ones?

Bees have wintered well in this section; very few have died. I transferred a swarm on the sixth inst. that were very strong and had drones. Am using grape sugar; my bees go for it equally as for honey. I think it solves the question of bees starving.

Colo, Iowa, Apr. 10th, 1878. D. HOWARD.

I at first did insert the fdn. in just the way you have mentioned, but soon found the girls would insert it much quicker in the way I have directed. If you saw through the top bar of your brood frames, you weaken it, besides wasting quite an amount of wax. Wood is much cheaper than wax, and as a good strong comb guide (say ⅛ thick, and ½ wide) adds much to the strength of the top bar besides saving considerable wax, I would always use them. There is no trouble at all in the way I have directed, in fastening the fdn. so it will never come off. Enameled cloth would be pretty sure to bulge or sag in such a way as to give your comb honey an uneven surface. The beauty of a filled section depends on the eveness and smoothness of the comb.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, MAY 1, 1878.

Call unto me, and I will answer thee, and shew thee great and mighty things, which thou knowest not.—Jer. 33: 3.

◆

As our circulation now exceeds 3000, our price per line for advertising will be 30c. We now print, each month, 5000 copies. All contracts made for a specified time will, of course, be at the old rate, until expiration of the contract.

◆

ERRATA. On page 147 for size of emery wheel for gumming saws, read 8x¼ inches, instead of 8¼. The size is rather larger than we use, on account of the danger of breaking so large and thin a wheel. Ours are 8½x3-16.

◆

OUR friend Nellis comes out with a catalogue of 32 pages, and as it is almost a treatise on bee culture, in some respects, it may be worth your while to send for it, even if you do not purchase. As hives, section boxes, etc., of almost every make are offered, the tendency is rather to confuse the beginner, as it might, in fact, even an old head, as to what is best.

◆

AT present writing, April 25th, I hardly know what is going to become of us here, my friends, if you keep sending money as you have. Almost every department is running night and day, all the spare rooms in the vicinity are occupied with hands, and we are just now putting up a shed out of doors, to nail up and paint hives in. Forty-seven hands are at work, and more are being added almost daily. What shall I do with all this money and business? What do you wish me to do with it? Of one thing I am quite sure, and that is I should give you *better* work. We are improving daily, and we have already selected 15 acres, right close to our depot, where a brick factory, 100x40 feet, is to be built just as soon as our rush is over; and when we get there, with plenty of room, I have visions of beautiful work, planed on all sides, aye, and perhaps painted too, and made to fit accurate steel gauges so exactly, that even a variation of a thickness of tissue paper will be noticed. On this 15 acres, which has a stream of water on it, and a grove of forest trees, are to be our gardens for experimental honey plants and seeds; and when you come to pay me a visit, I hope to be able to have some pleasant individual to show you around, and to let you see whether or no I have been faithful, with the few things God has, through you, given me. May be, when I get old and grey headed, if God spares me so long, I shall not have my brain always teeming so busily with new schemes and inventions.

◆

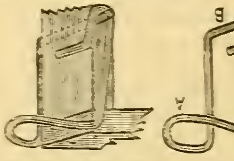
TURNIPS FOR BEES.

ON page 332 of our Dec. No., I spoke of the seven top turnip, the seed of which was given me by A. W. Kaye, Pewee Valley, Ky. The turnips are now a sea of yellow blossoms, and I have never seen so many bees on a small patch of blossoms of any kind, as is now to be seen from daylight till dark, on these turnips. They seem very hardy, and the foliage is most luxuriant, much more so than either the rape or Chinese mustard, which latter plant it much resembles, only having larger blossoms. As our patch was sown after the first of Oct., and the crop could easily be cleared from our land by the middle of June, a crop of honey could be secured without interfering with the use of the land for other purposes. Friend K. recommended the plant particularly for pollen, but besides this, I am inclined to think it will give more honey to the acre than anything that has heretofore come under my notice. We have much trouble here, in raising rape and mustard, with the small turnip beetle or flea, but this turnip patch has never been touched; whether it is on account of sowing so late in the fall or because the flea does not fancy it, I am unable to say; but this I do know, that if I could get a 10 acre lot covered with such bloom during the month of August, I should not hesitate an instant to hand over the money for the necessary expenses. Of course I will save every particle of seed, and friend Kaye will do all he can, and if that is not enough to supply the demand, we will call on Landreth, who can probably furnish more seed of the same kind of "seven top turnip." If we cannot get the blossoms in August, we can certainly have an abundant supply between fruit bloom and clover. Who will tell us more about it? Our own was sowed in drills about a foot apart, and Master Ernest, I presume, got tired, for I told him to sow all the seed, and in order to get done, he put them less than an inch apart, but for all that, it is now the prettiest "posy bed," I believe, I ever saw in my life; and the music of the bees, humming over and among the branches is just "entrancing," to one who has an ear for such music.

◆

THE $25.00 CHAFF HIVE.

SINCE our last, I cannot begin to tell you how many sketches, samples, and models have been sent, of a frame whose supporting arms were hinged, or made to spring out and back, or some such device. The most promising thing of the kind, which we give below, was sent some months ago, by friend Martin, of Hartford, N. Y. The objection I should make to it will apply to all or nearly all of them. This has the merit of extreme cheapness and simplicity, and it is extremely ingenious, if you will allow me to judge.



MARTIN'S WIRE SUPPORTING ARM FOR BEE HIVE FRAMES.

The frame is made in the ordinary way, except that the top bar is not prolonged; from rather heavy wire, he then bends a fixture, like A B C; a single hole is now drilled or bradded through the upper part of the end bar, and the part B is sprung to one side, and pushed through, as shown. Now you will notice that all that holds the loop A from slipping back against the corner of the frame, is the projecting end of the wire C, and that this end makes a kind of a torsion spring. The loop makes a good secure rest for the frame, and at the same time, it can easily be sprung back out of the way, whenever the frame is to pass the upper rabbet. The attachment can be made by machinery, so as to cost but little, and it can be very quickly added to any kind of a frame, by sawing off the projecting ends of the top bar. The objections (and the same will apply to almost all of the similar devices that have been sent in) are propolis, which in very strong stocks, will soon cover the whole surface of the wire, and rabbet too; killing bees, when the end of the wire loop touches the hive or rabbet, for they will almost always manage to get some where, where they will get pinched or bumped; and lastly the jarring that results from having any part of the frame touch or scrape any part of the hive. If we wish to lift a frame so quietly that the queen does not even stop laying, no portion of it should even graze any part of the hive. This arrangement unlike the metal corners, adds nothing to the strength of the frame, but for all that, it is most remarkably ingenious, and will, very likely prove very useful with many of you, as it does with friend Martin, or "Scientific," as many of you have learned to know him through the journals.

HIVE MAKING. Although it is very important to have good, nicely fitting, well made hives for the bees, I would, by no means, encourage the idea, that the hive is going to insure the crop of honey. I think, as Mr. Quinby used to say, that a good swarm of bees would store almost as much honey in a half barrel or nail keg, as in the most elaborate and expensive hive made, other things being equal. This is, supposing we had a good swarm, in the height of the honey season. If the colony was small, it would do much better, if put into a hive so small that the bees could nearly or quite fill it, thus economizing the animal heat, that they might keep up the temperature for brood rearing, and the working of wax. Also, should the bees get their nail keg full of honey, unless more room were given them, at just the right moment, a considerable loss of honey would be the result. The thin walls of the nail keg would hardly be the best economy, for a wintering hive, nor for a summer hive either, unless it was well shaded from the direct rays of the sun.

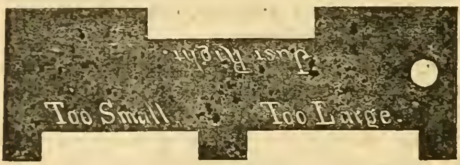
Hives with thick walls, made of some porous material that is a good non-conductor of heat, as well as an absorbent of moisture, have been well proven to have decided advantages over hives made of a single thickness of boards, especially for wintering: but, as they are heavy to move around, and rather more expensive in the start, I think it well to have both winter and summer hives in the same apiary. The single walled hive which we call the Simplicity, on account of the simpleness of its construction and management, answers almost as well as the winter hives for summer use, and can also be so arranged as to do very well for winter; the winter hive which we call the chaff hive, because the walls are made about four inches thick, and packed with chaff, are much the safest for winter and spring, and are also very convenient for summer use, except that they are not easily carried about. These chaff hives are permanently a two story hive: that is, the upper story is not removable, as is the case with the Simplicity hive. On this account, the latter is much the cheapest hive in an apiary, for a single story can be used for small swarms or nuclei, and answers every purpose of a full hive, until more room is needed, and then an extra story can be added or even a third, as the case may require. For these reasons, the Simplicity hive is the one most used, and is always needed, no matter how many chaff hives you may have.

HOW TO MAKE A SIMPLICITY HIVE.

If I were going off on a journey, and should desire a lot of new hands to make some hives in my absence, I should talk to them about as follows.

Boys, I want these hives good and nice, and, to have them so, you *must* be careful. The first thing you are to do is to get some lumber, and, if you can, you would better get white pine. If you cannot get this, you would better use whitewood. If you cannot get that either, get the best lumber that they have for house building, in your locality. For the body of the hive, you want boards just one foot wide. For the cover and bottom boards, which are one and the same thing, you want boards not less than 16½ inches wide. For the narrow boards, we get best barn boards, and we pay for them, at this date, $24. per M.; for the wide boards, we have to pay about $28. As soon as you get your lumber home, have it nicely "sticked up." I say nicely, for I do not believe I ever had a boy that would put up lumber safely, unless he was told a great many times. Your lumber would better be 16 feet long, for this length works with less waste than any that is shorter. Now, before you stick it up, you are to prepare a level place for the first board: or rather, you are to have the first board lay straight and flat. If it is to be left out of doors, it should have slant enough to carry off the water. If you have shop room, you can put it in doors. Do not lay the first board on the floor, but have some sticks under it. These sticks for sticking up lumber should be of an exact thickness, and I think it will pay to provide some that are just right. If you are making many hives, you will have refuse sticks, that will come very handy for this purpose. The sticks should be about 1½ inches wide, exactly ⅞ thick, and 15 or 20 inches long. A stick should be placed at each end of the boards, and two more between them, so as to make the spaces about equal. Put the sticks exactly over each other, or you will, if you have a large pile, have the boards bent or warped by the weight of those above. When they are all piled up square and true, you can feel safe in regard to them. Even if the lumber is to be used within three days, I would put it up in this way as soon as it is unloaded.

If you are going to make accurate work, you must have your lumber all of an exact thickness: and as it is much easier to talk and write about having it exactly ⅞ than it is to make it so, I will explain to you a kind of gauge that I had to give the planing mill men, before we planed our own lumber. Below is a picture of it, full size.



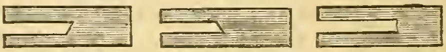
GAUGE FOR PLANING LUMBER.

When you carry them the lumber, tell them, if it is planed so that the "too large" notch just fits it, it will have to be planed over again; and that, if it goes into the "too small" notch, it is spoiled. This will soon get them into the habit of having it "just right," every time. Their planers must also be so adjusted, that both edges of the board are *just right*. Since the 18 in. Lilliputians cost only $77., if you have much work to do, it is, by far, the most profitable way, to have a planer of your own. Then you can set it just as accurately as you choose, and it will pay for itself, where there is work to do, in a few weeks. The usual price for planing is $1.00 per M., and we can do that amount without trouble per hour, with our 4½ horse power engine. If the lumber is not well seasoned, it may be well to have it planed to the too large gauge; but this is a very bad way of doing, on many accounts. Get your lumber seasoned as well as it possibly can be, before you commence work, and, if you are *obliged* to use that which is not well seasoned, cut your stuff to the exact length, then stick it up, and leave it until the very last moment, before you take it to the exact width you wish it. This is, perhaps, one of the surest ways, especially when the work is not all to be sent off immediately. We frequently leave covers in this way, and only bring them to the finishing width the very day they are to be shipped. It is especially needful that the covers be well seasoned, for a season check would let in water, and endanger the life of the colony.

A great many of Barnes' Foot Power saws are in use; therefore I shall give my directions for them, and, if you have different saws, you can modify the directions to suit your conditions.

We will first talk about making the body of the hive. Your pile of one foot boards is to be cut up in lengths of 37 inches. Remember, just one inch more than a yard. To avoid making mistakes, you can cut a stick of just that length. If you have quite a pile of stuff, a gauge that you can push the boards against will be very handy. Always commence at the best end of the boards. If the end is checked or bad, allow a little for waste. Cut off 5 lengths, and leave the surplus of half a foot or more on the last piece; that is, do not cut it off. Pile these last pieces by themselves. You will need an assistant to do this. If you have a boy or girl 10 or 15 years old, they can help "papa" a "big lot," in making hives.

The table of the saws, as it comes from the factory, is hardly large enough to make hives on conveniently, and so we will piece out the stationary side by a sort of a leaf about 1 foot wide. This leaf is easily fastened on securely, by a couple of hard wood strips screwed on the underside of both leaf and table. After your boards are all cut up, you will proceed to bring them to an exact width and straighten one side. As we want the boards to finish 11½, we will trim them, the first time, to about 11⅝; those that will not hold out this width, can be saved to make frames of. To bring one side straight, you must set the parallel bar at the left of the saw, at just the right distance from it, and then push the boards through, holding closely up to the gauge. Very likely, when you start out, your saw may "run," as it is termed; this may result from two causes. If the teeth are filed longer on one side than on the other, and insufficiently set, the saw will be very likely to run either into, or out of the lumber. This will not do at all, for we can never have an accurate hive, unless we get a straight edge, in the first place, to work from. Give the saw set enough to make it run clear, as explained in SECTION HONEY BOXES, and have the teeth so that the cut ahead of the saw shows as in the diagram below.



IMPROPERLY FILED. PROPERLY FILED.

A second cause of trouble may sometimes be found in your parallel bar, which must be just parallel, or you cannot have a true straight cut. The diagram will show you the consequences of having this bar improperly set.

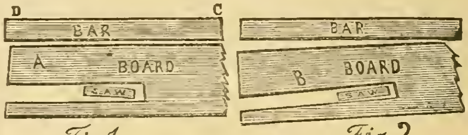


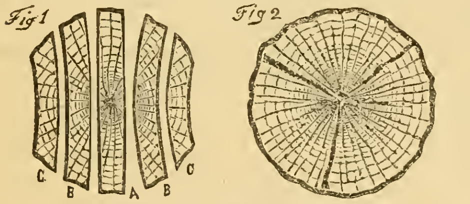
Fig 1 Fig 2

SETTING THE PARALLEL BAR.

In fig. 1, the bar is set so that the board between the saw and the gauge wedges, as it were; and, when this is the trouble, you will see the surface, at A, shows as if it had been planed; this is done by the face of the saw, which rubs or burnishes the wood, as it squeezes past. The remedy is plain; move the end, D, away from the saw a little, or, the other end nearer to it, as may be necessary to preserve the proper distance. In fig. 2 we see the opposite extreme, and, when this is the trouble, you will find it almost impossible to keep your board up against the gauge, for the saw is all the time crowding it off. The piece, B, will constantly be getting too narrow, and the strip that comes off, too wide. Before you attempt to do any work, and thus spoil your lumber, you should test your saw and gauges, on some refuse pieces. When it is all right, the saw should run clear and smoothly in the center of the saw cut, and the stuff should easily be kept close up to the gauge.

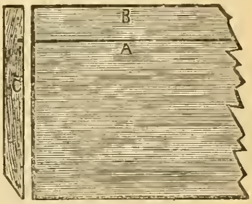
While you have been doing this work, the movable side to the table should be taken off, as it is not needed, and would only be in the way. After one edge is trimmed, set your gauge so as to cut exactly 11⅝, and bring the boards all to this width.

Now, before going further, you are to sort the boards, so as to have the heart side of the lumber come on the outside of the hive. If you look at the end of each board, you can see, by the circles of growth, which is the heart side, as is shown in the cuts below.

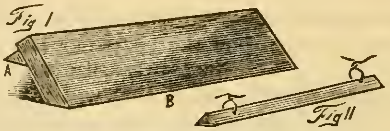


WHY BOARDS WARP.

At A, you see a board cut off just at one side of the heart of the tree; at B, the heart is in the centre of the board; at C, near the bark. You all know, almost without being told, that boards always warp like C; that is, the heart side becomes convex. The reason is connected with the shrinkage of boards in seasoning. When a log lies until it is perfectly seasoned, it often checks, as in fig. 2. You will observe that the wood shortens in the direction of the circles, and but very little, if any, along the lines that run from the bark to the centre. To allow this shrinkage in one direction, the log splits or checks in the direction shown. Now, to go back to our boards, you will see, that B shrinks more than A, because A has the heart of the tree in its center; that C will shrink, in seasoning, much more on the bark side than on the heart side; that this can not fail to bring the board out of a level; and that the heart side will always be convex. You have all seen bee hives, probably, with the corners separated and gaping open, while the middle of the boards was tight up in place. The reason was that the mechanic had put the boards on wrong side out. If the heart side had been outward, the corners of the hive would have curled inwardly, and, if the middle had been nailed securely, the whole hive would have been likely to have close, tight joints, even if exposed to the sun, wind and rain. This matter is especially important in making covers to hives. If your boards are all sorted with the heart side downward, we are ready to proceed. I say heart side downward, for you want them placed just as they are to be used on the saw. I have seen boys that would turn every board over, just as they picked it up to put on the saw table, instead of turning the whole just as they were to be used. I have seen others that would carry each one of several hundred boards 6 or 8 ft. to the saw, when the whole pile might have been put almost within one foot of the place where it was to be used. It is very awkward, and extravagant, to do work in this way.



Before we cut these boards into sides and ends, a groove is to be sawed for the shoulder under the cover, and the lower edge is to be beveled, to allow the hives to be piled over each other. The following cut shows a side and end view of the board. The groove A is to be just 2 inches from the top B, and is to be ⅛ deep. This you can easily do by setting your parallel bar just 2 inches from the saw, and screwing the table top up until the saw cuts ⅛ deep, cutting the groove in the heart side, of course. Now, to take off the three cornered strip at the lower edge, a little different rigging is required. In fact, we must have a table to slide the boards on, and it must set an angle. This angle we will have 45 degrees, because our table will then be just right for making the corners of the hives. The beveling platform is easily made of a piece of 2 inch plank, 6 inches wide, and 2½ feet long. Take a three cornered piece from the lower edge, and then nail this piece against the other, in the position shown by the following cut.

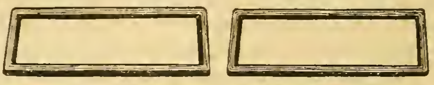


BEVELING PLATFORM.

This piece A is to rest directly on the top of the parallel bar of your saw table. When you get it adjusted so that the thin edge B fits *closely* to the table, screw it fast to the bar. This allows the piece to be adjusted upon any spot on the table, and gives us a square mitre to any stuff that may be laid on it while it is being sawed. Adjust the whole at the right distance from the saw, and then take off the corner of all the boards, on the opposite side from which we sawed the groove, as shown at the bottom of C, in the figure on the preceding page. Now remove the beveling platform, and you are ready to cut up the boards. We have all this time been using the rip saw; we will now change and put on the cut off.

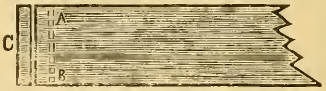
I think we would better "oil up," at about this stage of proceeding. I do not know why it is, but I scarcely ever take hold of a foot power saw when it would not be greatly improved by giving it a thorough oiling. It is really a saving of time, as well as of strength, to oil your machinery often. Much time is also saved, in changing saws, by having your saws and wrench close at hand. The 15c. screw driver, illustrated last month, exactly fits Barnes' saw mandrel, and we keep one tied, by a stout cord, to the frame of the machine, that it may be always in readiness. To be obliged to stop your work, and hunt for tools when you are in a hurry, is "awful." You would better fix some kind of a drawer in your saw table, to keep your saws, or they may get down among the rubbish, and be lost. I *have* known people to lose their cut off saw, and be obliged to stop and hunt for it; and I should not be surprised, if they scolded somebody who was not to blame at all. I have spoken of having one of the children help by handing you the boards, &c.; if they do, be sure that you make the work pleasant for them. If you lose your tools and scold, you certainly will not make good hives.

You probably have not made any mistakes, thus far; but now, before you commence cutting off the pieces to the exact size, be careful. As you will need a pair of iron frames for putting your hives together, I think you had better have them on hand now, to take your measurements by. if you attempt to measure with a square, you will get it wrong side up or something, and get your gauges set wrong. It was but yesterday, that one of the boys cut up a whole pile of boards to the wrong length, because he looked on the wrong side of the square. For fear he would do something of the kind, I had given him a board just right, for a sample, but some one else wanted it, and so he took the dimensions, and it turned out as I have said. Go to your blacksmith, and get him to make two iron frames like the picture below. They are to be made of ½ inch square iron, and the dimensions, inside, are to be as exactly 16 by 20¼ as you and he, both, can make them. When you have, with some trouble, got them nearly right, do not say, that is near enough, but make them exact.



PAIR OF IRON GAUGE FRAMES, FOR HIVE MAKING.

The corners, you must finish out with a file, so that they are sharp and true. For convenience of slipping them over the hives, they are to be made a little flaring, like a barrel hoop; if they are ⅛ inch larger, each way, on the large side, it will be about right. Now, for the buzz saw. You will observe that the sliding half of the table has a bar bolted to *its* top, for a square cut off gauge; this gauge must be set accurately, like the other, or you will have much trouble. It is to be so set, that, when you cut off a board held closely against it, it will be exactly square across the end. You can test this with a good square, but I think I would prefer to take a board with true straight sides; cut off a little, say a half inch; now turn it over, and cut off again; if the strip cut off is of exactly the same width at each end, your gauge is set true. For fear you may not get the idea, I give you a picture.



HOW TO SET THE CROSS CUT BAR.

If your gauge is set right, the slices, C, will be exactly straight; i. e., not wedge shaped, even if you turn the board over so as to cut from the opposite edge at every cut you make. When you are satisfied with this, set your parallel bar, so as to cut the side pieces of the hive to just go into the iron frame length wise, and the end pieces, to just go in cross wise. The 37 inch boards will just make one of each. If you want to

BEES AND HONEY.

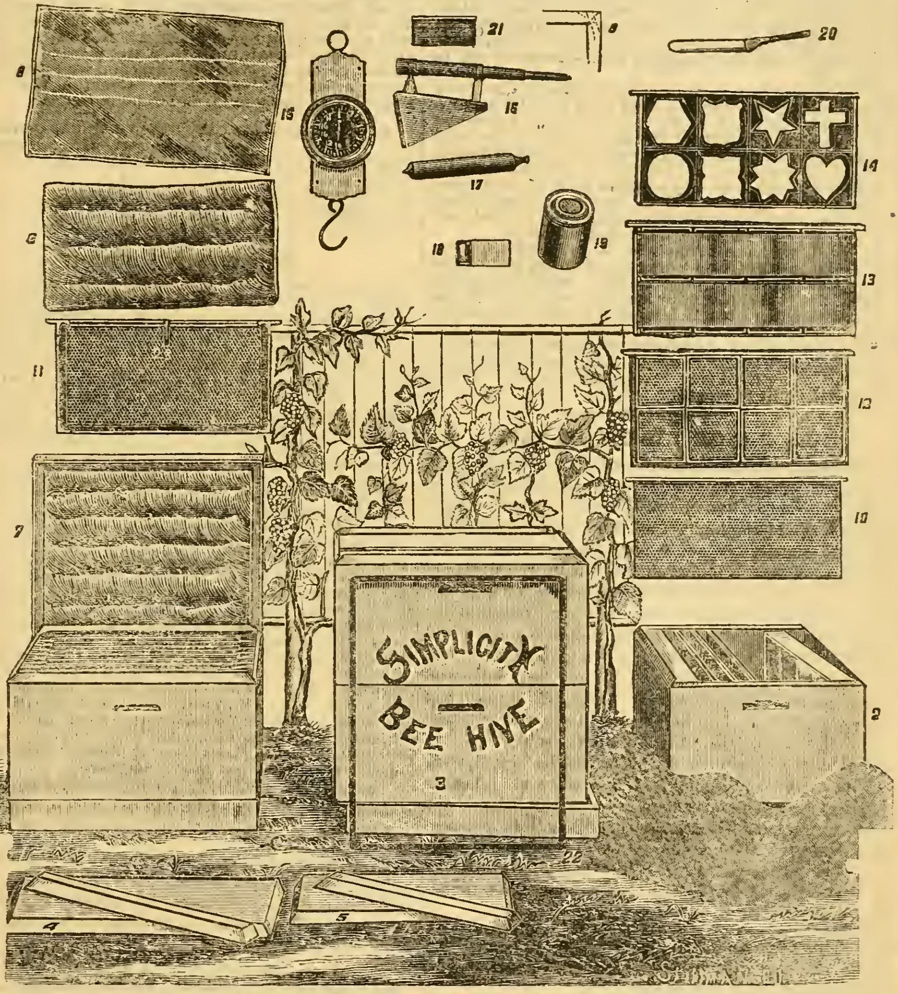
Our 12th Edition

Illustrated Catalogue & Price List,

OF

Implements for Bee Culture with Directions for their Use.

A. I. ROOT, MEDINA, O., MAY 1st, 1878.



Implements for the Apiary.

No. 1 shows a Simplicity Hive, single story, with the Enameled Cloth removed, so as to show the 10 frames in place. The Chaff Cushion is shown in the cover, where it is fastened by 8 or 10 tacks around the edge. You will observe that when the Cushion is thus fastened in the cover, we are obliged to have the Enameled Cloth, shown at No. 8, fitted closely over the frames that the bees may not get to the Cushion, or it would be stuck so tightly to the frames that we could never get the hive open. For wintering, a much thicker cushion is used, unquilted, and placed in an upper story. This Hive is shown with the entrance closed, by pushing it back squarely on the bottom board, while Nos. 2 and 3 are pushed forward so as to give a ⅜ inch passage for the bees. No.

2 shows the way in which we contract the entrance with sawdust, only it needs stamping down a little more. Cover and bottom board are always used *same side up.* Bottom board should rest on four half bricks. No. 3 is a 2-story hive, being simply two bodies one over the other, with the cover removed, the covers and bottom boards being one and the same thing. In the foreground are seen the four simple pieces of which the hive is composed. The two large ones are of course the side and end of a hive, and the strips lying on them are the pieces that are nailed under the cover, as will be readily understood by looking at the diagram on page 7. The iron frame leaning against No. 3 is the gauge to be slipped over the hives while they are being nailed. It is, inside, 20¼ by 16 inches, and is slipped over the hive both top and bottom, like a hoop. This holds them square and true, and shows when the stuff is just right. If they just fill the hoops, you can be sure that any hive you have will just fit any other, and that it will be exactly right for every frame in the apiary, if they are also made on a gauge, as they certainly should be, or at least the stuff should be cut to fit a gauge.

No 12 is a frame containing 8 section boxes filled with fdn., and No. 13 is the same with the tin separators added. At No. 2 we see one of these frames of sections at each outside of the hive; this is the way in which we arrange a single story for comb honey, leaving the brood in the middle. At No. 3 the whole upper story is supposed to be filled with these frames of sections. No. 11 is a metal-cornered frame filled with fdn., and a transferring clasp, No. 23, is shown pushed down on the top bar, as they are used.

At No. 14 we have a frame of fancy sections. The fdn. is put in these by pushing them apart, and catching it between the two ⅜ boards of which they are made. No. 16 is the Quinby smoker, and No. 17 is the Doolittle smoker. No. 19 is a quart feeder. We should have added, in the proper place, that the artist has put quite a number of wires on the grape vine trellis, while but 3 are really needed. The grape vines are also heavy with foliage toward the top of the posts, during the hottest weather.

OUR PRICE LIST FOR 1878.

Bee keepers who are ready and willing to work for their honey, we believe are all busy, and are all, so far as we know, realizing as fair a reward for the time and capital invested, as in other kinds of business. A few of the most keen and enterprising are, as in all kinds of business, far outstripping the rest, and it rests with you alone, my friend, to determine what place in the ranks you will occupy. Just one piece of advice: However attractive the wares may seem that we are about to describe, we would say, don't get in debt for them; if you haven't the money to purchase, don't buy until you get it. Be humble and satisfied with little, and let your apiary grow of itself, and be self-sustaining. I say this because I *really* do not wish you to be disappointed. If you study the subject and become thoroughly familiar with the bees by actual work among them, both capital and bees will come as fast as you can handle either. I want to see you all prosper, and to do so, you must be cheerful, courageous and independent; above all, don't get crazy and extravagant if you should happen to get $25 or $50, as the proceeds of one colony in a season; prosperity is sometimes harder to bear than adversity.

IMPLEMENTS FOR THE APIARY.

We have carefully thrown out or remodeled everything in our list found in any way defective, and we offer nothing that we do not approve of and use in our own apiary.

We can ship promptly, by Freight, Express or Mail, (none mailable except those designated,) goods mentioned in the list in every number of GLEANINGS. Hives, Extractors, &c., can be sent much cheaper by Freight, but in this case they should be ordered three or four weeks before needed, if the distance is considerable. During the months of April, May, and June, orders may sometimes be delayed several days, but our customers may rely upon receiving notice at once on receipt of all remittances.

At the prices given in this list, cash *must accompany every order;* as the sending of goods, C. O. D., entails an additional expense, and goods sometimes fail to be taken, we really dislike to send them thus, but if you are content to pay from 25 cents to $1 to the Express company to bring us the money, (which would be sent by P. O. Order for 10 cents.) we will send them C. O. D. when desired. Orders for frames or hives of dimensions differing from those named, will also be liable to some additional delay, especially during the "honey months."

PREPAYING EXPRESS AND FREIGHT CHARGES.

Express charges are so variable that it seems difficult to establish a uniform and satisfactory rate; yet, if you choose to leave the matter to us, we can prepay charges at about the rates given in the following table. If you can make a better arrangement with your agent, do so by all means; if not, send the money to us and we will prepay express when goods are shipped. If your express office is not on a main line, from 25 to 50 cents more must be added. This is rather indefinite, we are aware, but it is the best we can do. If goods are not wanted at once, they can be sent by freight at one-half, or still less rates; but it is very unwise to wait until they are wanted and then order by freight. As an illustration, we have taken a cover, a whole hive, and an extractor, they weigh respectively about 5, 15, and 25 pounds.

RATE AT WHICH WE CAN PREPAY EXPRESS CHARGES.

	Cover.	*Hive.*	*Extractor.*
New York	$ .60	$ .75	$1.00
Chicago	.55	.65	.90
San Francisco	3.00	4.00	5.75
New Orleans	1.60	2.00	2.75
Galveston	1.90	2.35	3.20

HOW TO SEND MONEY.

If you do not wish to take any risk of loss, send P. O. Order, registered letter, or get a N. Y. Draft. But as all these ways are expensive, especially for small amounts, I will make a suggestion. Probably not more than one letter in a thousand is lost in the mail, but to be on the safe side, we will assume that one in a hundred will be lost. The cheapest way is to get a Money Order, but even at the low price of 10 cents, we pay $10. to have the one hundred letters safe, besides the trouble of getting the Order. Had you put $10. in each of the hundred letters, and lost one of them, you would have been no more out of pocket. This would show that it only pays to register amounts exceeding $10; to make it a little safer, call it $5. We have for years sent all sums of less than $5., unregistered, and we have saved in fees, far more than the amount lost, besides saving our friends who received it, the trouble of getting it cashed. This plan only applies to persons of known integrity, for when the money is sent, they may if disposed, say they never received it. If you do not know ME, *you had better not send me any loose money, for I may be only writing this to get the advantage. Do you ask why I do not stand the loss myself if it is only one letter in one hundred? I would cheerfully do this, were I not in danger of doing harm by making such a proposal in a public circular, for it would be too much like leaving the door to one's store open all night. Besides, I should have to charge a little more for goods, if I stood* ALL *losses. I would advise all to do business with as much economy as possible, but when losses come, I think it best that we each bear our share of them, cheerfully.*

For fractional parts of a dollar, postage stamps are always acceptable, and we can use them of any denomination.

We always consider it an especial favor to have customers inform us by postal card whether goods are satisfactory; whether our mode of packing is efficient; time taken in transit; whether Express or Freight charges were reasonable; etc., etc.

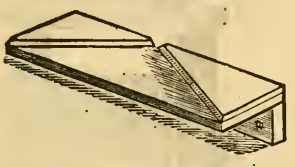
Respectfully, A. I. ROOT, Medina, O.

IMPLEMENTS, AND SUPPLIES FOR THE APIARY.

To avoid useless repetition, this price list contains only further explanations of the articles given alphabetically, in every No. of GLEANINGS; *therefore if you wish a list of all the articles we keep for sale, you are to look there for it.*

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

ALIGHTING BOARDS.



ALIGHTING BOARD, DETACHABLE.

These are intended especially for hives with a loose bottom, but can be used on almost any hive. They are fastened to the bottom board with a couple of screws. The entrance is closed or enlarged at pleasure, by moving the hive backward or forward. They look rather pretty on the Simplicity Hive, but I do not think them at all essential. See HIVES. Price 10 cts.; by mail, 25 cents.

BARRELS FOR HONEY,

Price, $2.50; the same waxed and painted, $3.50. For directions for waxing and painting, and all about barrels and barreling honey, see A B C, Part First.

BASSWOOD TREES.

Young Basswood or Linden trees, securely packed with some of their native soil adhering to the roots of each.

One foot and under, per one hundred		$2 00
" " " " " "	by mail	3 00
One foot to five feet " "		5 00
Five feet to ten feet " "		10 00

These will be taken directly from the forest as wanted, and if planted any time after the leaves have fallen, until the ground freezes, not one in one hundred should fail to grow. They can also be sent during the months of April and May; and spring planting is, perhaps, preferable. For a description of the basswood with engraving, see A B C, Part First.

BEES.

Bees, full colony, amply provided for winter, in our new two story, chaff hive (described Nov. and Dec. No's. '76) tested queen from imported mother, safe arrival guaranteed..(Lawn hive $1 more.)	$15 00
The same in a 1 story Simplicity hive	13 00
The same in old style L. hive with portico, etc.	12 00
The same with hybrid queen	10 00
Not provisioned for winter (hybrids in old hive)	7 00
Two frame nucleus with tested queen	5 50
" " The same with dollar queen	4 00

For an imported queen in any of the above, add $5.00.

We think we can prepare bees for shipping safely any month in the year; when we fail in so doing, we will give due notice.

BEE HUNTING BOX,

10 | With printed instructions........................ 25

BEE-KEEPER'S MEDLEY.

This is a fine large photograph, size 11x14, containing excellent large photographs of both Langstroth and Quinby, besides good sized pictures of almost all the prominent bee-keepers, and writers for the Bee Journals. The name of each is plainly printed on it, and as it contains over 150 pictures, it makes a very pleasant study, especially after having followed these friends in their writings as we have many of them, for years. Think of having a good photo of Hetherington, Grimm, Doolittle, Bolin, Prof. Cook, Dadant, Dean, Davis, Gallup, Katie Grimm, Mrs. Harrison, Dr. Hamlin, Muth, Nellis, Nesbit, Wagner, Prof. Kirtland, Parsons, Carey, and enough more to nearly fill this page, all sent safely for only $1,00.

BINDER,

Emerson's, for GLEANINGS.................. 50, 60, 75

BRASS GAUGE FOR PLANING LUMBER.

Exactly ⅜. Price by mail........................ 50

BURLAP,

10 | For covering bees, 40 in. wide, per yd...... 10

CHEESE CLOTH,

2 | For strainers, per yard 10

CAGES FOR QUEENS.

These are made of wood, and a sufficient amount of the flour candy is poured into the cage while hot, to let the bees and queen a week or 10 days. The larger size will hold enough to last two or three weeks. We have had excellent success in shipping in these cages, when as many as 20 or 25 bees were used in the small ones, and twice as many in the larger ones. The prices are 5 and 10c, or by the dozen, 50c, and $1.00. If wanted by mail add 1c each for the small, and 2c each for the large. See cut on next to the last page.

CANDY FOR BEES.

This is made of Coffee A sugar, with 1-5 part wheat flour. It can be fed at any season, and will start brood rearing nicely even during the winter months, when the weather is not too severe. As it is put into the regular brood frames, one of them can be hung in the hive as readily as a frame of sealed honey, and it is almost impossible for bees to starve when thus supplied. During a drouth in the fall or summer, brood rearing can be kept up, and queens can be raised, by the use of this candy, just as well as during a yield of honey. As bees lick it off slowly, it will not start robbing, even if fed in the open air. Price, 15c. per lb.; an L. frame holds, on an average, about 8 lbs. I have not yet succeeded in making good candy from grape sugar. (See feeders.)

CHAFF CUSHIONS.

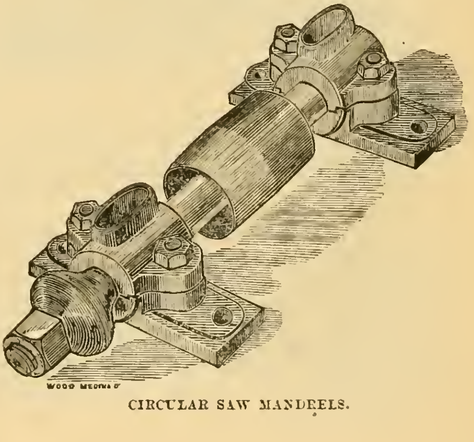
We make and keep in stock two sizes of these; the thin quilted ones to be tacked inside the cover to fill just the space above the sheet of enameled cloth, and the thick unquilted ones that are used for wintering, and that entirely fill the upper story. The former are 20c., and can be sent by mail for 2c. additional The large ones are worth 30c., and cannot be sent by mail for less than 60c. postage.

CIRCULAR SAWS FOR MAKING BEE HIVES.

After having tested saws of many different makers, we have decided that the "Simonds" saws, made without hammering, are decidedly superior to saws made by any other process. The temper is perfectly even, and while they hold an edge beautifully they file nicely, and stand up to their work, in spite of knots or cross grained stuff, better than any other. They give more work, better work, and do it with less power. Saws, as mentioned below, can be sent by return mail; if you wish a different sized hole, there may be some delay.

Postage	Diameter.	Thickness.	Size of Hole.	Price each.	Extra for each additional gauge (heavier)
3c	4 inch	19 gauge	¾	$0 85	$0 06
5c	5 "	19 "	¾	1.00	.07
5c	6 "	18 "	¾	1.25	.09
7c	7 "	18 "	¾	3.50	.10
11c	8 "	18 "	⅞	1.75	.11
15c	9 "	17 "	⅞	2.25	.14
20c	10 "	16 "	1	2.75	.15
30c	12 "	15 "	1	3.50	.20

Please state whether you wish rip or cross cut saws, and if you want them set and sharpened ready for use, send 5c., additional, for every inch in diameter.



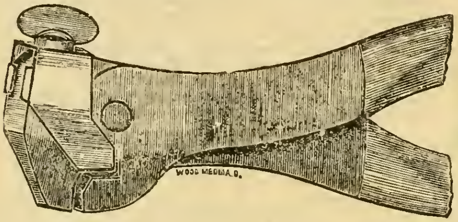
CIRCULAR SAW MANDRELS.

For the small saws, 4, 5, 6, and 7 inch, we sell a great many of the Barnes' foot power saw mandrels. These are not babbeted, have a ½ inch steel shaft 12 inches long, a 3 inch grooved pully, 1½ inch flange, and are to hold saws with a ¾ inch hole in the centre. Although they run surprisingly easy, and are models of simplicity, I would prefer the heavier mandrel, where any other power is to be used than the foot power. The price is $5.00, and they can be sent by mail for 60c. more.

The larger mandrel, of which we give an engraving, holds saws with a 1 inch hole in the centre, and has a 2½ inch pulley, with a 3½ inch face; a shaft 1 inch in diameter, and 14 inches long; and a flange 2½ inches in diameter. This mandrel runs in babbet metal and is so fitted, that there is absolutely no end shake. The price is $7.00, and it can be sent by either express or freight.

SAW SETS.

The saw set shown below, we think best for all general purposes, especially for those inexperienced with saws.


WOOD MEDINA O.

Price 75c; if wanted by mail, add 8c.

CLASPS,

10 For transferring, package of 100 25

CLIMBERS,

For Bee Hunting 2 50

COMB FOUNDATION.

PURE BEESWAX.

A lb. of wax will make about 150 starters such as we use in our section boxes or about 6 sheets for the L. frames, or about 4 sheets 12 by 18.

Packed in neat wooden boxes—paper between every two sheets.

	per lb.	per pckg.
1 lb. 1¾x2⅜ or 8x16½ by mail........	80c	80
3 " 12x18 or 8x16½, by mail.........	80c	$2 40
3 " " " by freight or exp.	58c	1 75
5 " " " " " " ..	55c	2 75
10 " " " " " " ..	55c	5 50
25 " " " " " " ..	53c	13 25
50 " " " " " " ..	52c	26 00
100 " " " " " " ..	50c	50 00
500 " " " " " " ..	48c	240 00
1000 " " " " " " ..	45c	450 00

White wax, 25c per lb. extra, if wanted, but we consider the yellow in every respect preferable, even for comb honey.

The fdn. is kept in stock, in sheets 12x18 inches, and 8x16½ inches [exact size needed for L. brood frames] 1¾ by 2⅜ (size we use for our sections) packed in boxes of 1, 3, 5, 10, 25, 50 and 100 lbs. each, and shipped only in these boxes at the above prices.

There are 5 cells to the inch, and one pound of wax makes from 4 to 9 square feet of surface. The thinnest will be used by the bees, but is not made into comb as quickly as the heavier, which has a greater depth of cell. A box contains different thicknesses; we can not well make it all of one thickness.

If 60 lbs. are wanted, send money for a 10 lb. box and a 50 lb. box, &c. The difference in price is only enough to cover the difference in cost of boxing, packing, &c.; five 10 lb. boxes, and packing, handling and nailing up five boxes, cost much more than one 50 lb. box, and packing, handling and nailing up one box.

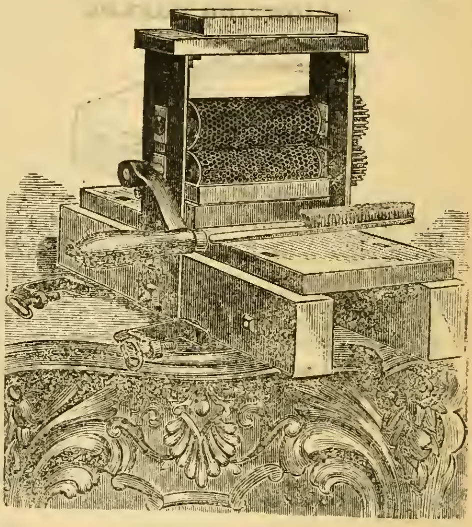
As these packages are all put up and kept in stock, there can be *no variation*, unless at an additional price.

Now, my friends, if you want all sorts of quantities, or want it cut all sorts of sizes, I will accommodate you with all the pleasure in the world, for TEN CTS. PER LB. EXTRA.

Wax will be worked up to order, and cut into sheets of any size desired, for 25c per lb. in quantities of 100 lbs. or more. For smaller lots, you will have to sell us your wax, and buy fdn. at above prices.

We will pay 30c per lb. cash for bright yellow wax, or sell it for 35c.

At above prices we can pay no express or freight charges either way.



FOUNDATION MACHINE WITH 5 INCH ROLLS.

COMB FOUNDATION MACHINES.

Machines for making sheets 1 foot wide -	$100 00
Expressly for L. frame, 9 inches wide -	50 00
For making 5 inches wide for section boxes-	35 00
Double Boiler for above machines, -	$3.00, 3.50 and 4.00
Dipping plates per pair. - -	$1.00, 1.50 and 2.00

The above prices are for cells 4½ or 5 to the inch. If drone size is wanted, add $10, $5 and $3 respectively to above prices. The machines are all ready for use, and full instructions will be sent to each purchaser.

We have sold $35 00 machines for making comb foundation to

Rev. J. Van Eaton, York, N. Y.; Lewis Walker, Ventura, Cal.; G. M. Dale, Border Plains, Iowa; G. W. Gates, Bartlett, Tenn.; A. Salisbury, Camargo Ills.; C. F. Lane, Koshkonong, Wis.; Wm. S. Hersperger, Jefferson, Md.; Wm. Riatt, Liff, by Dundee, Scotland; W. S. Boyd, Bethany, O.; W. R. Bishop, Sherwood, Wis.; Dr. J. B. Hawkes, Arlington Heights, Ills.; A. W. Foreman, M. D., White Hall, Ills.; Mrs. M. D. Minor, Port Jackson, N. Y.; C. M. Joslin, M. D., St. Charles, Mich.; Geo. B. Wallace, San Bernardino, Cal., C. L. Johnston, Danville, Pa.; J. F. Flory, Modesto, Cal.; W. H. Stewart, Orion, Wis.; C. F. Dielnielt, Milwaukee, Wis.; Scudder and Palmer, New Boston, Ills; A. Potter, Eureka, Wis.; R. Quinn, Shellsburg, Iowa.; J. B. Keeler, Carlinville, Ills.; M. H. Adams, Fort Ann, Wash. Co., N. Y.; M. Wyrick, Cascade, Dub. Co., Iowa; W. W. Cary, Colerain, Frank. Co., Mass.; C. R. Carlin, Shreveport, La.

A $108.00 (12 inch drone comb) machine to J. H. Nellis, Canajoharie, N. Y.

A seven inch copper roll, worker machine, to N. N. Betsinger, Marcellus, Onon. Co., N. Y.

Nine inch $50.00 machines, to C. R. Carlin, Shreveport, La.; Jno. Hunter, 5 Eaton Rise, Ealing, England; J. B. Stevenson, San Bernardino, Cal.; J. E. Crane, Bridport, Vt.; J. B. Rapp, Owensville, O.; Peter Johnston, Grass Valley, Nevada Co., Cal.

Twelve inch $100.00 machines, to C.O. Perrine, Chicago, Ills.; D. A. Jones, Beeton, Ont., Canada; J. Madory, Los Angeles, Cal.; J. H. Nellis, Canajoharie, N. Y.

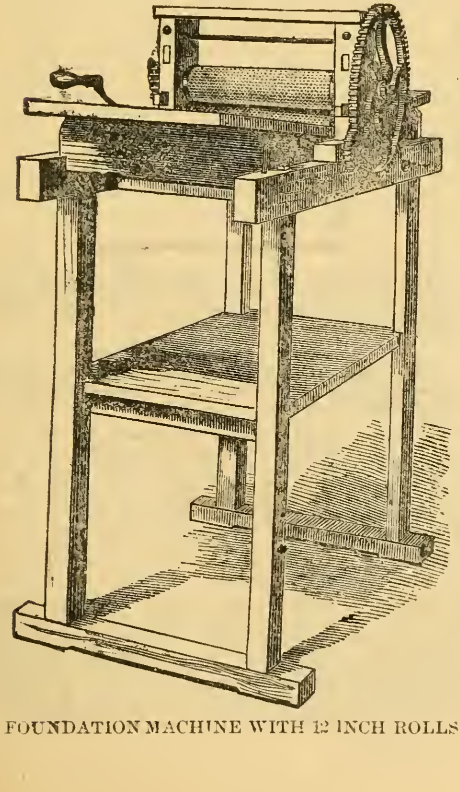
HOW TO FASTEN SHEETS OF FDN. IN THE BROOD FRAMES.

The melted wax plan.

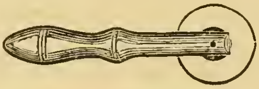
Set a common small lamp in a tall box with one open side, having coarse wire cloth nailed over the top. Place on the wire cloth a cup containing wax. Keep the wax just melted, by turning the lamp wick up or down. Now, with a pencil brush, you can put the melted wax neatly just where you want it. Fit a board so that it will slip into your frame just half way, and lay your sheet of fdn. on this, with its upper edge close against the top bar; brush the wax along the joint, slip out the board and hang the frame in a hive. After a little practice you will do them quite rapidly, and think it is just fun. It is said that the fdn., to prevent sagging, should go in the frame in such a way that the walls of the cells run up and down, instead of diagonally. Our sheets are all made for the L. frames in that way.

The plan we prefer.

If wax is rubbed *hard* against a piece of dry wood, at ordinary temperatures, it will adhere almost as well as if put on in a melted state. Therefore, all we have to do to fasten it in the frames, is to lay it in place, and press the edge against the comb guide with the fingers, until it sticks moderately. Now take a knife or screwdriver, and rub it down hard. To prevent the wax from sticking to the tool, dip it in either starch or honey; we use the latter because it is handier. One corner of the tool should go clear down to the wood, at the last stroke, to make a "sure thing" of it. The fdn. should reach within ¼ inch of the end bars, and within ¾, as a general rule, of the bottom bar. This space is needed to allow the sheets to stretch as it is being worked out, which it always does more or less. Some lots of wax will stretch scarcely perceptibly, while others will to the extent we have mentioned; and as it is desirable to have the sheet hang clear of the bottom bar when the cells are drawn out full length, we think best to give below the amount of space we have mentioned. The reason is that the combs will bulge, if there is any stretching after they have touched the bottom bar. To put the sheets in rapidly, you will need a board cut so as to just fit inside the frame, and reach up as far as the comb guide. Lay the sheet on this, close up to the top bar, and stroke it down to the comb guide, as we have directed. If your frames are made without a comb guide, you can fasten the sheet to the top bar in the same way, and then give it a quarter turn, so that it will hang straight down. As fast as the frames are filled, they should be hung in a hive, to be secure from injury. If you do not make the above plan work to suit you, you can fasten the sheets by tacking a strip of wood about ⅛ by ⅜ into the top bar, while the upper edge of the sheet is between them; this strip should be put on in such a way that the fdn. hangs straight down under the center of the top bar. For putting fdn. into the section frames or into boxes, make a saw cut nearly through the stuff of which the top is made, where you wish the sheet to hang. Before this piece is fastened in place, bend the wood backward in such a way as to open the saw cut, slip in the edge of the sheet, close up the cut, and it is secure.



FOUNDATION MACHINE WITH 12 INCH ROLLS.



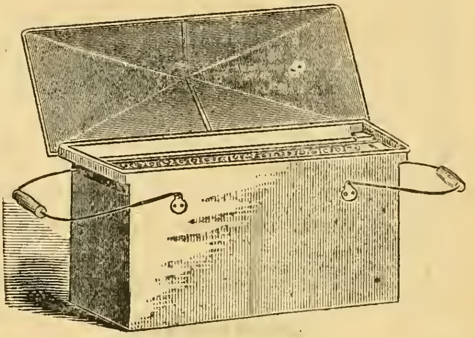
CARLIN'S FDN. CUTTER.

Small size, with tin wheel, 10c.; large size, with steel wheel, 75c. If wanted by mail, add 2c. for the former, and 5c. for the latter. Although these are very convenient for cutting a great number of small pieces, our hands have rather preferred for larger work, to cut a board the size wanted, and lay it on a pile of a dozen sheets or more, then with a *very sharp*, round pointed, butcher knife, they cut with repeated strokes through the whole at once, clear round the board. If the wax is neither too cold nor too hot, you can, with practice, do it rapidly and nicely. None of the scraps need be wasted, for you can use, in the section boxes, pieces of all shapes and sizes.

DRONE COMB.

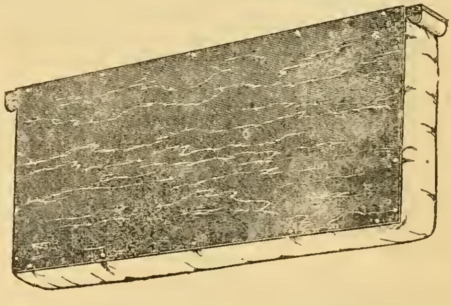
Although it would seem that drone comb would be preferable for surplus boxes, it is at present more theory than actual practice. We can furnish very thin drone comb at the same prices, and you can all try it for yourselves.

COMB BASKET,



Holds five frames, secure from dust or robbers, and catches all the drip; price $1,50.

DIVISION BOARDS.



CHAFF CUSHION DIVISION BOARD.

These are made of thin wood, packed with chaff, and have cloth cushion bottom and ends, that they may fit closely in any hive, and be easily removable. Price, 20c; if wanted by mail, 40c must be sent for postage.

ENAMELED CLOTH.

This we now use in preference to anything else, for covering the frames, before the chaff cushions are put over the bees. I have never known the bees to bite through it, and the surface is so smooth and glossy, they put very little propolis on it. It is also so thin and light, that, if it is spread over a bee, he can readily crawl out from under it without injury. Price per yard, 45 inches wide, 25c; if a whole piece of 12 yards is taken, 22c; if ordered by mail, send 25c per yard extra for postage.

TIN LINED SHEETS OF ENAMELED CLOTH.

These are just right for the Simplicity and chaff hives; price, 10c each. If sent by mail, 5c more for postage. Per hundred, by express or freight, $8.00.

ELECTROTYPES.

We can furnish electrotypes of any of the engravings in this price list, GLEANINGS, or the A B C, for 25c per square inch. If sent by mail, add 10 per cent to the price, for postage. To measure an engraving. you are to take the dimensions of the blank paper around it. None furnished for less than 25c.

EMERY WHEELS FOR GUMMING CIRCULAR SAWS.

These are very valuable for a great variety of other purposes, such as sharpening all kinds of wood cutting tools, cutter heads, grinding and polishing, cutting tempered steel, etc. etc. We give below the prices of such wheels as are most desirable for the above mentioned uses for the Barnes' saws.

PRICE LIST OF EMERY WHEELS.

Thickness of Wheels in Inches.

Diameter in Inches.	¼	½	¾	1	1¼	1½
3	40	50	55	60	65	70
4	60	65	70	85	1 10	1 25
5	70	70	90	1 05	1 25	1 50
6	90	90	1 25	1 55	1 90	2 25

If wanted by mail, add 10 per cent to the prices for postage.

The best wheel for the *small* circular saws is 3x¾-x3-16, and is made to order especially for us. Price, 40c; by mail 44c.

EXTRACTORS.

One important point is that all machines, to work to the best advantage, should be so made that the frame may hang in them just as it hangs in the hive, if we except the L. and Q. frames, and all having a length under the top bar greater than 14 inches. It may be impossible for us to give all the reasons for this now, but we hope you will take our word for it, when we say there are very good reasons for standing a frame on end in the Extractor, when the length is much greater than the depth.

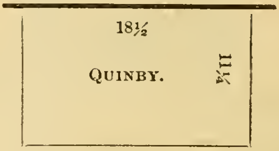
Our castings are made to fit two different sized cans; viz., 17 and 20 inches; and we make the cans also of two different heights. To work nicely, the frame needs about the same amount of room to hang in the Extractor, that it has in the hive; to do this there seems to be no other way than to make every Extractor to fit the hive it is intended for. Of course you can use them otherwise, but we are well satisfied that the cumbrous machines now in use, are many of them destined to be soon laid aside for the more modern kind.

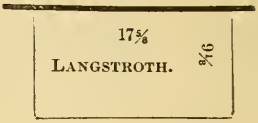
MATERIALS FOR MAKING EXTRACTORS.

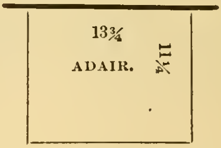
IX tin, 14x20, per box of 112 sheets.............	$9 00
Castings for the gearing, and supporting arm that attaches it to the can, in the rough, just as it comes from the factory...........	50
The same finished, complete, varnished ready for use..	1 50
If the latter is wanted by mail, send 50c more for postage.	
Honey Gates, tinned, ready to solder into the can	50
By the dozen..	4 50
If sent by mail, add 25c each, for postage.	
Wire cloth made expressly for extractors, per square foot..	15
If wanted by mail, 5c per foot extra.	
Hoops to go around the tops of the extractors, very strong and stiff, nicely tinned, and drilled for the castings, 50c; per doz.......	5 00

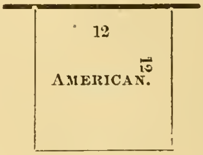
DIAGRAM OF PRINCIPAL FRAMES IN USE.

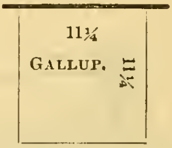
Figures given are outside dimensions in inches. Suspended frames have ¾ inch supporting arms, or an equal prolongation of top bar.

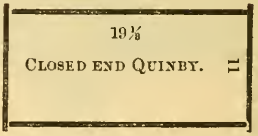












The following table is for the convenience of those ordering machines, and is intended to enable any one to decide for himself exactly what he can use to the best advantage.

PRICE LIST OF EXTRACTORS.

[The figures in parentheses, just before the prices, give the exact *inside* width of the revolving frame of the Extractor, *in inches*.]

A honey knife is included with each machine; the price will be $1.00 less if no knife is wanted.

No. 1.—For the Gallup frame, or any frame 11½ inches wide and not more than 12½ deep..(12)	$8 50
No. 2.—For the American frame, or any one 12 inches wide and not more than 12½ deep. (12½)	8 75
No. 3.—For any frame 12½ inches wide and not more than 12½ deep............................(13)	9 00
No. 4. For the Adair frame or any frame 13¾ wide and not more than 12½ deep.........(14¼)	9 00

The above are all in shallow cans, 17½ inches high, and are very convenient for placing at such a height as to allow of running the honey directly into the barrel or any other receptacle, and still not too high for any one to work conveniently. The following numbers can also be used in the same way, unless the operator is short in stature; in that case, a shallow box may be inverted to stand on, but is somewhat inconvenient

No. 5. This is made expressly for the Langstroth frame, which is to be used standing on end. It will take any frame whose top bar does not exceed 20 inches, and depth 9½ inches ....(10) $9 00

No. 6. The same except that it will take a frame of 10½ inches in depth....................(11) 9. 50

No. 7. This is made expressly for the Quinby *suspended* frame, and will take also the other kind when the end bars have a depth not greater than 11½ inches....................(12) 10 00

No. 8. This is for all Quinby frames, and all American frames having a depth greater than 12½ inches, and can be used for all the frames in our diagram, but is much more inconvenient than the smaller ones where they can be used....................(12½) 10 00

No. 9. This machine is like No. 8, except that it takes a frame ½ inch wider, and is suitable for American frames that are 12½ wide and more than 12½ inches deep....................(13) 10 00

No. 10. This is the largest machine that we keep in stock, and will take a frame as wide as the Adair, and as long as the Quinby....................(14½) 10 00

For frames having a top bar with an extreme length of more than 20 inches, we shall have to make an extra charge of $1 00, and we shall have to make the same extra charge for frames that exceed 14 inches the narrowest way. There are few frames of such extremely large size in use, yet we sell them occasionally. Also, we find a few who insist on an extractor that will hold 4 frames at once; unless the frames are very small, we cannot think such will be liked as well, yet we will furnish them when desired, at an expense of $1.50 extra. If you look into the matter, you will see that a very much larger and heavier revolving frame will be needed, and every ounce in weight added to this, hinders rapid work.

Any of the above will be made with the wire cloth in a slanting position, for $1.00 extra, but we do not consider it of any especial advantage.

All of the last six—tall cans—have a support at the bottom for the frames to rest upon, and also to hold broken pieces of comb, should it be desired. The first four have nothing of this kind, for it is not needed, and would in reality only make them heavier, and be in the way; we advise purchasers always to take the smaller machines when they will take their frames. For instance, we would much prefer the No. 4, to the No. 10, even if offered at the same price, provided we had nothing but the Adair frame in our apiary.

Although our machines are now made much lighter and stronger, the gearing very much improved in looks as well as in strength, an improvement added whereby once oiling will last for years, a cover and strainer added, and the prices reduced, yet we will make the proposal that we will, to any one who has purchased one machine, give 10 per cent off on all he may sell after that; and this is all we can do in the way of furnishing them at wholesale. To dealers who advertise our Extractors, we will give 25 per cent off. This offer refers only to Extractors and honey knives.

It may be there are valuable features found in the high priced Extractors, not found in our own, but if such is the case, we are unable to appreciate them. We have added every improvement suggested that we thought would prove valuable, all things considered. Any one who has studied the matter will see that to make a machine capable of receiving four combs instead of two, will require an increase in size and weight, without very materially aiding in rapidity of work, among the masses. Reversing the combs inside the can, making the inside frame three-cornered, running the machine by gearing or belts placed under the bottom, etc., etc., have all had their advocates, but we think have generally been, after a time, discarded like the revolving cans. Our friends can rest assured, that we shall spare no pains in promptly adopting any real improvement that may come up. Please *do* tell the dimensions of the frame or frames you use, in ordering.

Any kind of a machine that revolves the honey after it is thrown out of the comb, or that revolves tin cans with the combs, is a most serious blunder, as you will see by trying both kinds.

INSTRUCTIONS FOR USING AN EXTRACTOR.

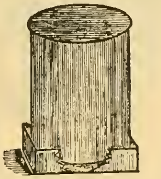
Many of our new friends have asked for directions for using these machines, but really they are so simple, that it seems little advice need be required. They are all ready for use when received, and the most that is required is to screw them fast to some box or bench just high enough to allow the gate to run the honey into the bung-hole of a barrel. Do not undertake to work unless the bees are gathering honey, or you will be very likely to have trouble. The best time is when they are busy in the fields, and if the yield is good, you will hardly need any smoke. Carefully remove a frame from the hive, and then, with a series of sudden jerks, shake the bees in front of the hive or on top of the frames, as you may find most convenient. When you have shaken off as many as you can, take a bunch of asparagus tops, and gently brush off every bee in front of the hive. Now with the honey knife, carefully cut the cappings from all capped cells: to do this quickly, you will slide the knife under the caps in such a way as to have them come off in one entire sheet. In regard to straining the honey, we know of no way that answers so well, all things considered, as to hang the little bag sent with the machine, in the bung of the barrel; this keeps it all close and tight from flies and dust, and when you stop work for a little while, it is all safe, without the necessity of covering anything up. Two such bags are really needed, so that one can be kept clean and ready to take the place of the other, when it becomes filled with impurities. As the sediment always settles to the bottom of the bag, the sides work well as a strainer for a long time. Cloth strains honey more perfectly than the finest wire cloth can. When the comb is uncapped it is to be placed in the Extractor; although you can extract one comb at a time if you choose, it is much better to have two, as they then balance each other, and the friction is less on the bearings, though our machines will stand the strain of the heaviest combs, one at a time, if need be. Turn just fast enough (and no faster) to throw out the honey, and there will be no danger of throwing out the brood; you will soon learn this by practice. Combs so full of brood that there is but little room for honey had better be left in the hive; there is little to be gained by working very close, and should the honey season suddenly close, there is danger of the bees starving, as we have known them to do, even in July.

On this account I would extract from the frames in the upper story only, after the bees get once well into them.

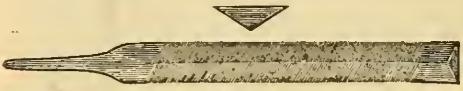
If your hives are kept close to the ground, and no weeds allowed to grow around the entrances, there is very little danger of losing queens while extracting, yet it is a very good plan to keep them carefully in mind, and if you should not see them, we think it a little safer to shake the combs that contain much brood, so that the bees fall directly into the hive. Losing queens while extracting is rather expensive business.

After the honey is taken from one side of the comb it is, of course, to be turned, and the honey taken from the other side. When the combs are very heavy and the honey very thick, it may be best to throw it out only partially the first time, and then reverse, to avoid crushing the comb into the wire cloth by the great centrifugal force resulting from such a weight moving at a great speed.

FEEDERS.



At present, we make and keep in stock 3 kinds; the simplicity shown on last page, the pepper box feeder, and the one shown above. The price is the same on all: 5c for a pint, and 10c for a quart feeder; by the hundred, $4.00 for the small, and $8.00 for the large; if sent by mail, double the above prices. To use the one shown above, dip it in a pail of syrup or honey, while held in a horizontal position; you can do this conveniently by taking hold of one corner. When full turn it upright, as shown in the cut, and lift it out. It may now be placed in front of the hive just at night, so as to allow the bees to get a "sup" to start them, and they will quickly take every drop. If you wish to feed in the day time, place it in the hive at one side of the combs, on the top of the frames, or on the top of a honey board with one of the holes open. The pepper box feeder is intended especially to be set over a hole in the quilt or honey board. Any of the cheap boxes with a perforated cover, such as pepper is sold in, will answer the same purpose. We also furnish what we have for years called the tea-kettle feeder, because it is the size of a common tea-kettle, and holds about 20lbs., or enough for a colony to winter on, at one "dose." The price of these is $1.00, or $10 00 per dozen. They are to be used in the upper story; if desired they can be made in an oblong or square form, so as to be used in the lower story. To avoid killing bees, they may be attached to a top bar, and be hung on the rabbets like a frame. While we are about it, I would remark that I consider the frame of flour candy, already mentioned, as incomparably ahead of any feeder, for after the candy is eaten out, you have a frame already for them to build comb in, and you are at no expense for feeder at all, and have none to remove from the hive after it is emptied. The candy also furnishes pollen, as well as honey, and you have no bother with liquids and sticky syrups. The feeders are needed for feeding grape sugar.



FILES FOR CIRCULAR SAWS.

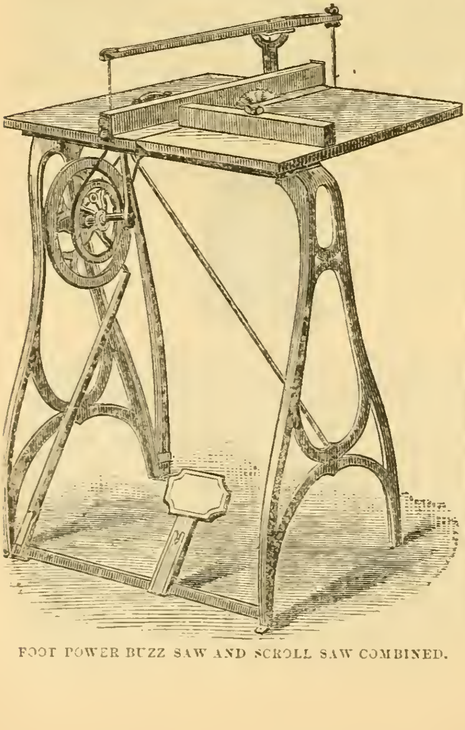
The above is the very best thing we have ever found, and as the shape is just the pitch of the teeth, almost any one can learn to put a saw in order with one of them, in a very short time.

Price of the 5 inch.............. 20c or $2 00 per dozen.
" " " 10 " .... 40c " 4 25 " "

If wanted by mail, add 1c for each small one and 7c for each large one. The large size has a notch in the top that can be used for setting saws. This size is just right for the hand ripper.

FOOT-POWER BUZZ-SAWS.

These machines are very handy in the apiary indeed, and as we warrant them to cut common, inch, pine boards at the rate of 8 feet per minute, line measure, and other thicknesses in proportion, they will answer to make frames, hives, section boxes, and almost every thing wanted about the apiary. The table can be raised and lowered for cutting different depths, for rabbeting, grooving, joining and other work. Price, with two 6 inch saws, all needed gauges, etc., $35.00. The buzz saws will reach through 2⅛ inches. A scroll saw attachment is added for $5.00 more, or $40 for complete machine as shown below.



FOOT POWER BUZZ SAW AND SCROLL SAW COMBINED.

These answer very well, for making hives for your own use, but if you think of making them for sale, you will need power of some kind. If the machine is all in excellent trim, *saws sharp*, and every thing nicely oiled, the labor is not very fatiguing, for sawing inch lumber, but if you let the saw get just a little dull, or your lumber is hard, or if you attempt to cut very much 2 inch stuff, you may wish pretty "severely," you had a little engine. Although we have steam power, we find the foot power saw so handy for odd jobs, that we could hardly get along without it. We furnish with them, two books on saw filing and the care of saws.

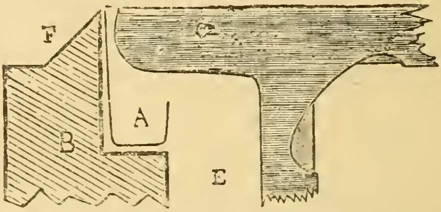
FOUNTAIN PUMP, OR SWARM ARRESTER.

This is a very pretty little brass force pump, or fire engine, with a rubber hose attached. It is so light, that you can work it with a pail of water hanging on your arm, and can throw the water without trouble onto the roof of a three story building. Of course these machines are invaluable in extinguishing fires, washing windows, clearing trees of worm's nests, watering plants and gardens, etc.; but their chief value to the bee keeper is on account of the facility with which a swarm of bees can be brought down by spraying them with the attachment specially for that purpose. If you can get within a rod or two of the swarm, come down they must, for you can wet the wings of each individual bee, so that he is as helpless as if wings were unknown, and then you are "boss" of proceedings, without any question. Price of pump is now but $8.50; they have formerly been $10. If wanted by mail, add 60c for postage.

FRAMES FOR BEE HIVES.

CORNERS, METAL, FOR FRAME MAKING.

Perhaps the readiest way of understanding all about these, will be to order a sample frame, which we send by mail with a bit of rabbet and sample transferring clasp, for 15c. For the convenience of those who do not get the idea at once, we submit the following diagram. Also see engraving on front cover.



METAL CORNER, AND ITS POSITION IN THE HIVE.

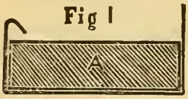
The engraving is full size. The ⅞ board B is supposed to be the end of the hive. A is a section of the metal rabbet, and C is the corner, raised a little from its place as it rests on the rabbet. The space E, between the frame and the end of the hive, should be about ⅜ of an inch, as explained below. F shows the bevel and shoulder, shown on the front cover, and also under section boxes; this is to prevent wind or rain from getting through, when the hives or covers are piled up two or more stories high.

It will be observed that the frame is supported entirely on knife edges crossing each other at right angles, making it impossible for the bees to wax the frame fast, and almost impossible for you to pinch a bee in putting the frame down, even if you take no pains at all, to get them out of the way. We prefer to have the tin rabbet reach up above the end of the corner as at A, because the bees are so much less disposed to try to propolize the bright tin; also when replacing the frames, the corner arms glide smoothly into place as soon as they strike the rabbet. The rabbet may be used without the corners, or the corners may be used without the rabbet, but neither of them alone gives us a frame so perfectly movable; and as wood is always giving more or less, they can not hang perfectly true: Neither can a frame be slid on the rabbets up to its place as quietly as when all the bearings are of metal.

HOW TO MAKE THE FRAMES.

Our frames were first made of strips of straight grained pine, only ⅛ of an inch in thickness, and it is surprising to see how well such combs have stood. On one occasion, a number of these heavily filled with honey fell from the top of a barrel, yet not a corner was injured, and not a comb broken; these were Gallup frames, however, only $11\frac{1}{4}$x$11\frac{1}{4}$. For the Langstroth frames, we now make the top bar about 10-32, and all the rest of the frame 7-32. Adair, American, and Gallup frames are all made of 7-32 stuff throughout. The Quinby size may have a $\frac{3}{8}$ top bar, but the bottom bars might all be not more than $\frac{1}{8}$, were it not that the frames may be sometimes used for transferring, and that the weight of the combs would sag the bottom bar, which is a very bad feature, if we wish to work closely and avoid killing bees. The top bars would not require so much wood, were it not that honey boxes are sometimes placed on them, and it is advisable to be on the safe side. When we depend entirely on the use of the extractor, we would prefer a space of half an inch between the ends of the frames; but for box honey, small bits of comb will be built in this space, more than will be the case if $\frac{3}{8}$ only is allowed. It requires a *very* careful operator to work fast, and avoid pinching bees, when only $\frac{1}{4}$ or $\frac{3}{8}$ inch is allowed.

The two following cuts may assist some in putting on the metal corners:



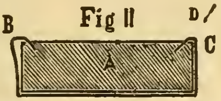


Figure 1 represents the points ready to be closed down and clinched into the wood; Fig. 2 a point badly clinched at B, and one perfectly driven down at C. The line D shows the direction in which the finishing blow of the hammer is to be given; in fact this blow should sink the metal slightly into the corner of the wood, drawing it up tight at the side C, and on no account letting it bulge out at B, nor allowing the point to curl up. A light, properly made hammer and a little practice will enable any one to make every point like C. Should you get one done badly, you can with a pair of plyers straighten it out and *make* it go right. The objection has frequently been made that this takes more time than to nail them; even if this were so, we are enabled to employ girls or other cheap help (we beg pardon, ladies, but we never yet saw a community that did not furnish more or less females, who would be glad to get some such light work) who could not possibly nail good frames; then after they are done, their superior strength and lightness compared with nailed frames, fully make up the difference in price. We will send you a sample frame by mail, just as we would have it, for 15 cents. (American and Gallup size 12 cts.) including sample of rabbet and transferring clasp, and you can test it by the side of your own frame in your hive. If the nailed ones do not seem awkward after using it, you, of course, need not invest any further.

The metal corners were patented June 18th' 1872, but we have "repented," and hereby give the invention freely to our readers. If any one can make them cheaper than we do, we will try to rejoice, because it will benefit the people.

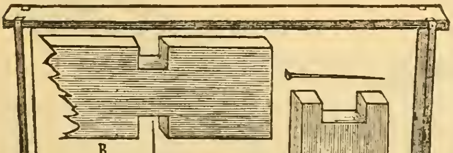
	Frames with metal corners, per hundred...	$5 00
20	Corners, metal, per hundred..................	75
20	" " top only, per hundred......	1 00
15	" " bottom, " "	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter discount will also be given to those who advertise metal cornered frames.

10	Blocks, iron, for metal cornered frame making..	15

One of the above is given free with every 100 frames, or 1000 corners.

Corners, Machinery complete for making	$250 00



FRAMES ENTIRELY OF WOOD.

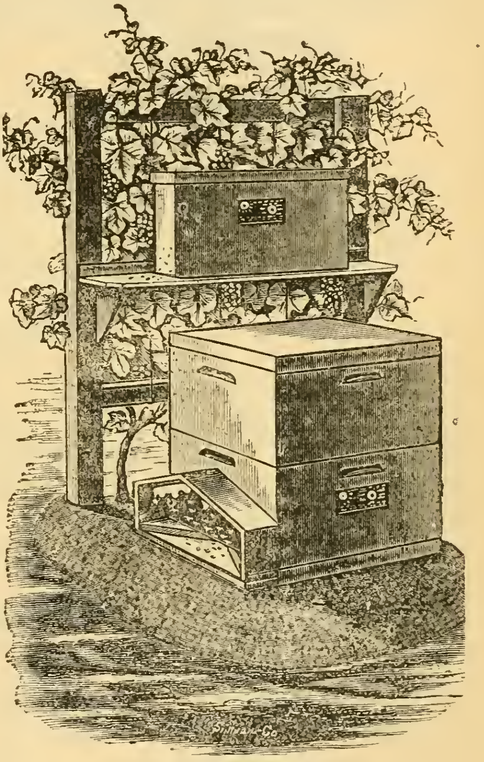
Made as in the cut above, price per hundred, any dimensions, $2,50. The regular Langstroth will be furnished at the above price in any quantity, but *odd sizes* must be ordered in lots of *not less* than 100. Sample L. frame of the above kind mailed for 7c.

GLEANINGS, BACK VOLUMES.

Vol's I and II each, post-paid, by mail..........	75

Vol. III is out of print, and we can only get second hand copies by advertising for them, at $1.50 per copy. We will sell such for $2.00, and pay postage. Vol's IV and V we can furnish at $1.00 each. We can furnish the whole five volumes neatly bound in one, for $5.00. They are too heavy to go by mail. These back volumes are very valuable as books of reference, and in the matter of patents alone, beginners would save hundreds of dollars, by knowing what devices have been tried and abandoned. Every few days we see accounts of patents on things that have been fully discussed in the old bee journals; had the inventor been posted on what is already known, he would have saved both time and money. All of the above volumes contain most comprehensive indexes.

HIVES.



SIMPLICITY BEE-HIVE.

Also 2 frame nucleus hive, on the shelf attached to the trellis.

One body and 1 cover in the flat, as sample to work from—one sample frame, sheet of duck, and frame of 8 section boxes with fdn. and separators included......................	1 00
One story hive for extractor (body 30c—2 covers 60c—nailing and painting 20c—quilt 20c—10 frames and enameled cloth cover 60c—crating 10c)......................	2 00
One story hive for comb honey is precisely the same as the above, substituting 2 frames of sections for 4 metal cornered frames............	2 00
The above 16 sections will be fitted with fdn. starters ready for the bees, for 15c, and the tin separators added for 10c, making whole complete......................	2 25

The above two hives contain everything used in a 2 story hive. We simply use another body filled with frames or sections, for a 2 story hive.

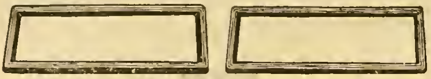
For a 2 story hive for the extractor, add (to 1 story $2.00) body 30c—nailing and painting 15c—10 frames 50c—crating 5c, making complete 2 story containing 20 frames......................	3 00

For a 2 story hive for comb honey add (to 1 story $2.00) body 30c—nailing and painting 10c—7 frames of sections 91c—crating 4c, making complete 2 story containing 7 frames and 72 sections 3 35

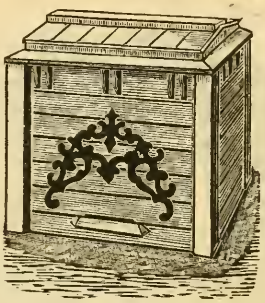
If filled with fdn. starters 60c—if also filled with tin separators 40c, making a 2 story hive for comb honey complete all ready for the bees.......... 4 35

An upper story (no cover) filled with sections, fdn. starters and all, ready to be set over any L. or Simplicity hive.......... 2 15

To prepare the above hives for winter, put in place of the 2 outside frames, chaff cushion division boards, price 20c each, and a thick one on top, 30c.



Iron frame to gauge size of above hives, and to hold them true when nailing, size 20¼x16 inside.... 50



CHAFF OR LAWN HIVE.

The Chaff hive is precisely the same as the above with the scroll work and brackets omitted.

They contain 10 frames below, and 14 frames or 80 section boxes above, are well painted and finished complete. (Lawn hive $1. more)..... 5 00

If filled with fdn. starters and separators, $1.25 more.

Without frames, chaff or paint, as sample to work from 2 50

These hives, if supplied with stores, will, we hope, need no attention whatever, from the time honey ceases until it comes again the next season.

Two frame nucleus hive, neatly painted......... 50

Three " " " " " 60

HIVES BY THE QUANTITY.

The demand for both Simplicity and Chaff hives in the flat, has been such as to warrant me in making arrangements to furnish them by the quantity, at very low prices. Now it is with these as with the fdn., we can only do it by having them made up in quantities ahead, all boxed or crated, ready to ship. To avail yourself of these low rates, you *must* send the exact amount of money specified, and order them in the quantity specified. Printed instructions with illustrations, will be furnished for setting up each kind.

SIMPLICITY HIVES IN THE FLAT.

	Per hive.	Per pckg.
3 1-story hives, no insides or bottom	60c.	$ 1 80
5 " " " " "	58	2 90
10 " " " " "	55	5 50
25 " " " " "	53	13 25
50 " " " " "	52	26 00
100 " " " " "	50	50 00

Metal rabbets are included with all the above, and hives are all made of seasoned white pine lumber.

You can use your ordinary Langstroth frames in the above hives, or we can furnish you metal cornered frames, and a sheet of enameled cloth for covering the frames, for just as much more; that is, the frames (10 to each hive) and enameled cloth sheet cost precisely the same that the hives do. Two of the above hives make a complete two story hive, the cover of one of them, then being used as a bottom board. If you wish comb honey instead of extracted, fill the upper story with sections instead of frames. The 56 1 lb. sections, with the 7 broad frames and separators, including fdn. starters, will cost *three* times as much as the 10 metal cornered frames. The sections and fdn. cost but little, but the broad frames to hold them are pretty expensive with the tin separators. However, as a set will last indefinitely, we have only to purchase the sections, after we once get started. The all wood frames cost just half as much as the metal cornered frames.

RABBETS FOR HIVES.

These are of folded tin, see diagram on page — the price will be 2c per foot for odd sizes, but those for the Simplicity hives, kept constantly in stock, will be 2c each piece of 14 inches, or $1.75 per hundred pieces. The rabbets on the lower story of the chaff hive are just the same, but those of the upper story are 20¼ inches long; the price of these will be 3c each, or $2.50 per hundred. Rabbets can be sent by mail, but the amount required for postage is just as much as the price of them.

CHAFF HIVES IN THE FLAT.

A Chaff hive is always a two story hive, and can be used in no other way; as the walls are double, the expense will be *three* times that of a one story Simplicity. Furnishing the lower story will cost just the same as the Simplicity, but as the upper story is wider, it will cost *one half* more.

No nails are figured in the above price, but we can furnish them for 5c. per lb. A single story needs about ⅓ lb. to make it good and strong. A pair of gauge frames are needed to nail the Simplicities conveniently, price $1.00

If you have never seen a Chaff hive, perhaps you had better order your first one made up, ($2.50) for there are a great many pieces to them.

HONEY.

EXTRACTED HONEY.

By the barrel@..........	13
" ½ " "..........	14
In tin cans of 10, 25, 50 or 100 lbs..........	15

Packages included at above prices.

COMB HONEY.

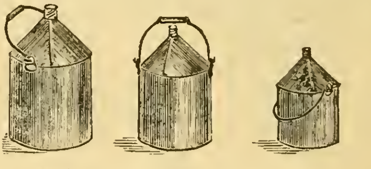
In 1 lb. sections, per lb..........	30

Case included with 48 sections.

JARS FOR EXTRACTED HONEY.

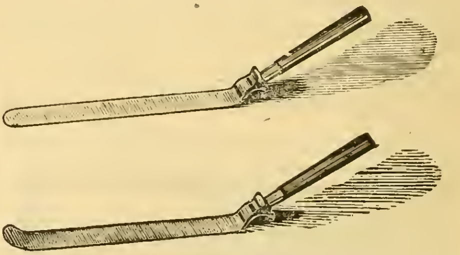
1 lb., square, per gross..........	$5 00
Corks for same "	75
1 qt. self sealing fruit jars, (hold 3 lbs. honey) Mason's patent, per gross..........	15 00

CANS FOR SHIPPING EXTRACTED HONEY.

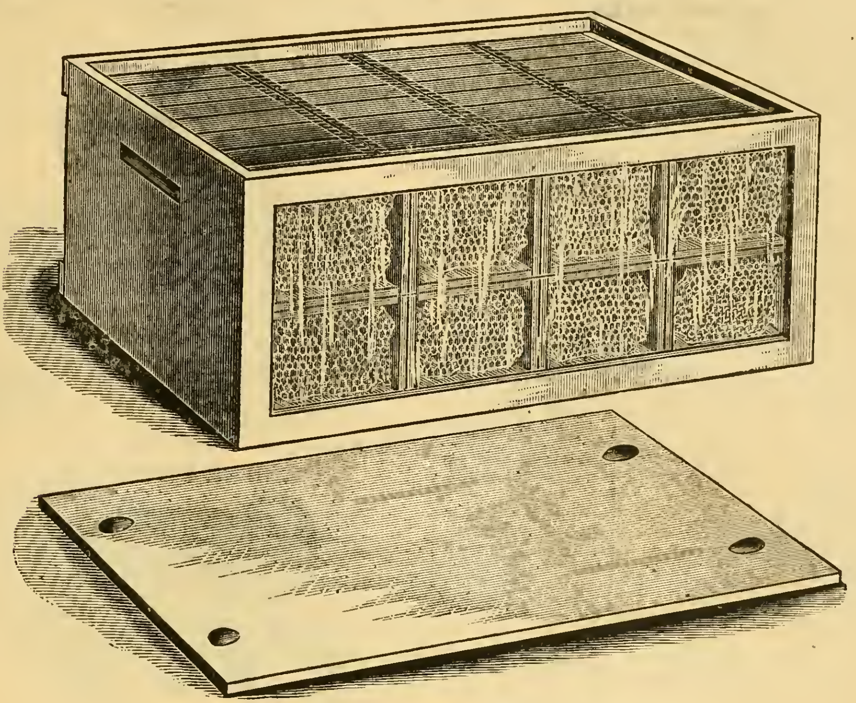


100 lbs. $1,00. 50 lbs. 50c 25 lbs. 25c.

HONEY KNIVES.



Honey Knives, price, $1,00, either straight or curved blades as shown in the cuts above. They will be mailed anywhere free, at the above prices, or a half dozen for $5,00; they will be furnished by express, for $9,00 per doz. Our honey knives are beautifully finished, with a solid ebony handle, are ground thin and sharp on both edges and have a long thin springy blade that is just as handy as can be, for a multitude of purposes about the apiary, aside from their legitimate purpose of uncapping. No hot water or anything of the sort is needed, to enable the blades to slice the caps right off in one entire sheet. Our preference is decidedly in favor of the straight blades. Muth's Honey Knife, 50c; per doz. by Express, $4.50.



SHIPPING AND RETAILING CASE FOR COMB HONEY.

This contains 48 of the 1 lb. sections, and, so far as our experience goes, may be shipped safely anywhere by express, without injury, for the express men can see just what it is. I presume they could be shipped as freight in the same way, on direct lines. The case, if kept clean, and treated to a coat of new paint occasionally, makes a very pretty case for retailing from, for the grocer has his honey neatly cased, and always in plain sight, and when a cake is sold, all he has to do is to raise the cover, and hand it out. Price of the case complete, 60c; without the glass, 40c: stuff in the flat, ready to nail, 30c. The same to hold only 24 boxes, half above prices. In lots of 100 or more, we can furnish large size for 20c, and small one for 12c each, in the flat. The small size can be sent by mail for 75c.

LARVÆ FOR QUEEN REARING.

Many failures are reported with this, just because it is ordered from too great distances, or at an unseasonable time of the year. It should be borne in mind, that if it is out of the hive more than 48 hours, or if exposed to a temperature lower than 30°, the larvæ will be pretty sure to be dead. If the bees remove it from the cells, you may be sure it was either chilled or starved. Send to some one near you who has an imported queen, do not have the larvæ out of the hive more than two days, and you will be pretty sure to get good nice queens. As soon as received, you are to insert it in the center of a comb, in the middle of the cluster of a queenless colony, and if it is all right, you will see them starting queen cells around it at once. Of course there must be no other eggs or unsealed brood in the hive, but it will be a very good idea to have some sealed brood.

LAMP NURSERY.

This is simply a hive made of tin, with double walls; the space between the two walls which may be from ½ to 1 inch, is filled with water, and this water is kept at an even temperature of about 100°, by a lamp under the hive. The lamp is to be enclosed in a box to avoid drafts, and the whole should be in a close room, to save the expense of oil. The tin hive is to be placed a foot or more above the top of the lamp chimney. When the oil is purchased by the barrel, the expense is but little more than one cent per day. Get your queen cells on the plan given in A B C, and when capped over, they may be taken away from the bees entirely, and the frame containing them hung in the nursery. If you have followed the instructions given, the queens will all hatch out long before the workers, and all you have to do is to place them in any queenless hive or nucleus, as soon as they are hatched. You need not open the hive to introduce them, but you can just let them crawl in at the entrance, and the loss will certainly be no greater than that of inserting queen cells. You can, if you choose, have several combs containing queen cells in the nursery at the same time, and when we can have queens hatching every day for weeks, we really enjoy the fun. It is easy keeping a supply of cells on hand, when we once get started, and we do not examine our nursery oftener than about five times a day. It will be observed that, with the lamp nursery, we have no cutting, or mutilating of our nice combs, as we do where we cut out queen cells. When the queens are old enough to begin to gnaw out, they can easily be heard by holding the comb of cells next to the ear, and as they are ready to introduce as soon as they begin to cut out the caps, they may be safely taken out with a sharp pen knife, and put at once where wanted. They sometimes kill each other when crawling about in the nursery, but not often unless there are bees present. We have found a half dozen or more crawling about peaceably together on first going out in the morning, but they would be certain to kill each other, if left until a few hours older. Price of nursery, with lamp large enough to burn several days, $5.00.

While queens just hatched can be safely introduced to artificial swarms just made, or to nuclei, a great many failures have been reported when they are let in where a laying queen has been just removed from a full hive. I give you this word of caution to prevent disappointment.

LABELS FOR HONEY,

In blue and gold, dark bronze and gold, or in white printed in two colors, furnished with your own address, and source from which the honey was gathered, already gummed, post paid by mail, 1000, $3.25; 500, $2.40; 250, $1.80. No order rec'd for less than 250. At these low rates, the full number mentioned *must* be ordered without the change of one single letter of the type.

Same as above, except that source of honey, and name of bee-keeper is left blank, put up in packages of 100, assorted colors, for both comb and extracted honey.—Per package post paid, 25c.

MICROSCOPES.

These are real compound microscopes, and quite a different thing from the double and single magnifying glasses so often called by that name. The one we offer at $3. is a very neat instrument carefully packed in a mahogany box, with implements for the work of taking regular lessons in the insect world. You will find, with it, that a single bee will make a study for a long time. Sent by mail for $3 15, and if you are not pleased with it, you can return it at our expense, and the money will be refunded.

PRICE LIST OF QUEENS.

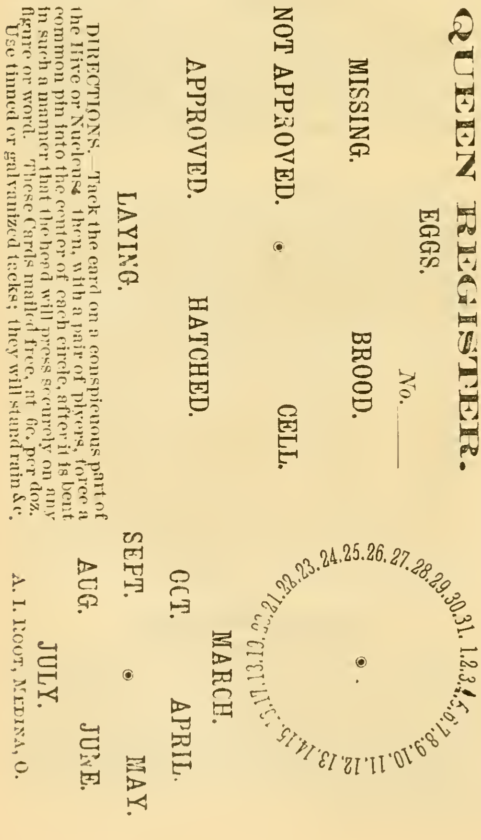
Imported queens will be $6 00, if I select the best to fill your order, or $5 00, if I select the poorest. What I mean by best, is those which are largest and lightest in color, that produce the largest and yellowest bees, and are the most prolific layers. It takes a long time to test a queen for honey gathering, and therefore it would be nothing strange, if those sent out at the lesser price, are really most valuable.

Tested queens, reared from Imported mothers, having all the above good qualities, $3.; with part of the above good qualities, $2.50; and the poorest, that I feel sure are not hybrids, $1.50. Now I am going to try to have the above satisfactory, and if they are not, you are to send them back inside of 10 days, and get your money or another queen, as you choose.

Young queens just commencing to lay, will be sold for $1 00 if you come and get them; if you want them sent by mail, send us 10c, for cage and postage.

Queens that have been tested and "found wanting" will be sold for 50c. I also reserve the privilege of sending out any kind of a queen that I do not like, as a 50c. queen. I have made the above conditions that I may be enabled to "pick out" queens to order, without doing any of you an injustice. The dollar queens are always taken just as they come. If any of you can furnish them cheaper, I will rejoice with the rest.

I do not think dollar queens can be furnished sooner than July 1st; but if our friends in the south conclude to "help us out" in the matter, I will let you know through Gleanings.



QUEEN REGISTER.

No. ____

EGGS. BROOD. MISSING. CELL. NOT APPROVED. APPROVED. HATCHED. LAYING.

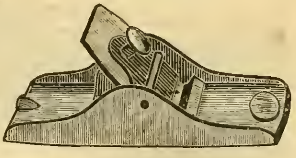
MARCH. APRIL. MAY. JUNE. JULY. AUG. SEPT. OCT.

1.2.3.4.5.6.7.8.9.10.11.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.

DIRECTIONS.—Tack the card on a conspicuous part of the Hive or Nucleus; then, with a pair of plyers, force a common pin into the center of each circle, after it is bent in such a manner that the head will press securely on any figure or word. These Cards mailed free, at 6c. per doz. Use tinned or galvanized tacks; they will stand rain &c.

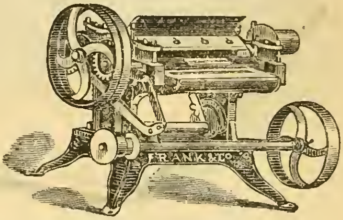
A. I. ROOT, MEDINA, O.

PLANES.



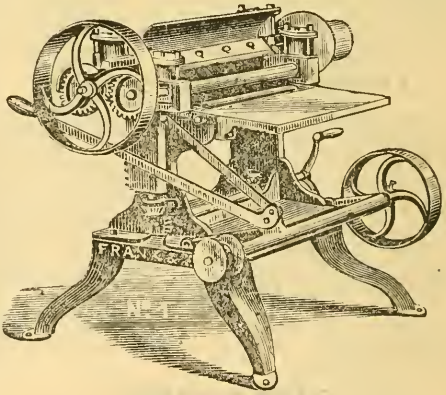
A real little plane, for only 25c. Yes, and we have made arrangements with the manufacturers so that we can send them by mail, post paid, all for 25c. At first glance you might take it for a toy plane; but, if you try it on a board, you will find it is a plane in reality. If you have sawed your stuff for hives a little full as I have directed, you can, with this plane, get just a fit, and without very much labor either. They will sharpen a lead pencil beautifully, trim up a wood cut or electrotype, take the corners off from a rough box, reduce the width of a board, and do it all in a workmanlike and finished manner; and when they need sharpening, the bit is taken out or adjusted securely, by simply turning a single screw with the thumb and finger. We can furnish a larger size for 50c, and still larger for 75c.

PLANING MACHINES.



CIGAR BOX PLANER.

Price of 12 inch	$75 00
" 9 "	60 00
" Counter Shaft	12 00



LILLIPUTIAN PLANER.

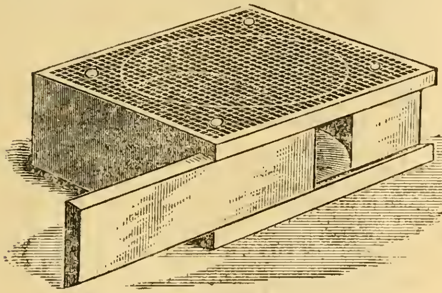
Price of	12½	inch	with stand	$60 00
"	"	"	without stand	55 00
"	15	"	with stand	71 00
"	"	"	without stand	65 00
"	18	"	with stand	82 00
"	"	"	without stand	75 00
Counter Shaft				15 00

For full particulars of these Planers send for descriptive circular.

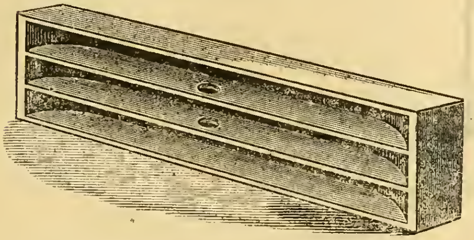
QUEEN CAGES AND BEE-FEEDERS.

There are two inventions I have made of late, that I am especially proud of: the Candy Queen Cage, and the Simplicity Feeder. They answer the purpose so completely, and are so clean and neat, that I should not have considered the price very high, at 25c; but when I discovered that we could make them so as to be sold for *only five cents*, I——I——well, as nearly 1$

I can remember, I think I must have looked happy. Every time we fill an order for them, I say to myself, "Won't that 'fellow' be tickled, when he sees them and thinks of the insignificant price." I *do* like to see *nice* work at low prices, but I always feel "awfully miserable" when I am charged, or am obliged to charge anybody else, high prices for work that is not "nice." Now I will show you the cage and feeder, and try to stop "gossiping."



OUR 5 CENT CANDY QUEEN CAGE.



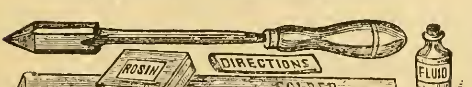
OUR 5 CENT SIMPLICITY BEE-FEEDER.

No directions are needed for using the queen cage, and almost none for the feeder. Fill it with honey, syrup, sweetened water, or even sugar with water poured on it, and then set it in one side of the hive, on the frames, in the portico, in front of the hive, or in the open air anywhere, and the feed will all be taken without a single bee getting drowned. Since the above cut was made, we have made the feeders longer and narrower, having two grooves instead of 3. They hold, just about 1 pint, and are sent safely by mail for 10c. postage included. See feeders.

SALICYLIC ACID, FOR FOUL BROOD.

This is claimed to be a perfect remedy, but as it is a new thing, we would better, perhaps, make some allowances. Some of our friends in England say it has no effect on the real virulent foul brood. I have never had any experience with the disease, but my friend Muth, of Cincinnati, in whom I have much confidence, declares it made a perfect cure in his apiary, with only a single application. The method of treatment is to dissolve ¼ ounce of each, salicylic acid and borax, in a pint of pure soft water; if so much will not dissolve, less will do; the exact quantity is not important. The solution is sprayed or sprinkled over all the combs, as well as bees. To make sure work of it, the diseased cells should all be opened, that the acid may have a chance to kill all the germs of the malady; although many report having succeeded by simply spraying the bees and combs. A spray diffuser worked with a rubber ball, such as can be had of the druggists, is very convenient for the purpose. Price of salicylic acid per oz., 50c. Sent by mail, at the above price.

SOLDERING IMPLEMENTS.



For $1.00, I will send by mail, a full sized soldering iron ready for use, with a box of rosin, box of soldering fluid, bar of solder, and full printed instructions for use. If sent by express, I will add a soldering board, all rigged, ready for work.

SECTION HONEY BOXES.

SECTION BOXES IN THE FLAT, PRICE PER 1,000 BOXES.

Any dimensions not exceeding 2x5x5................$10 00

The above is 50 cubic inches; for larger sizes add 10c per 1,000 for each additional cubic inch or fraction of an inch, outside measure. Extra prices for less than 500.

Just right to fit in L. frames, 2x4¼x4¼......... 9 50

The above are crated in packages of 500 each, weighing about 50 lbs.

Sample by mail with fdn........................... 5

If the grooving for holding the fdn. is omitted, 25c less per 1,000. Sections weigh from 7 to 10 lbs per 100.

10	L. frame made 2 inches broad to hold 8 sections	5
25	The same with 8 sections......................	13
25	The same furnished with fdn. starters all ready for the bees..............................	20

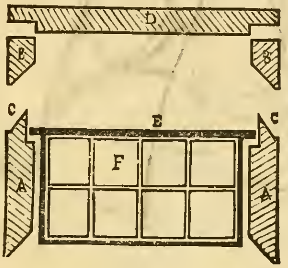
Adding tin separators to either of the above will increase the price 5c, and the postage 6c.

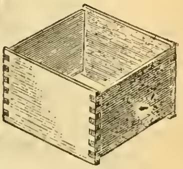
Broad L. frames to hold sections, per 100, in the flat $4.00

The above are made like the "all wood" frames.

TIN SEPARATORS.

For the broad L. frame, per hundred, $2.00. Separators for the 3 frame box, per hundred, $1,50.

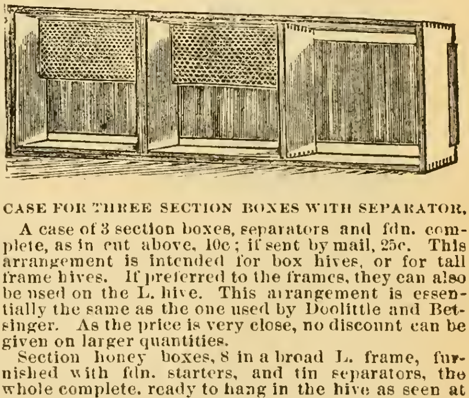




SECTION BOX.

SECTION BOXES AND THEIR POSITON IN THE HIVE.

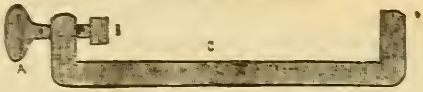
The above cut and the cuts on the cover, will make everything plain, almost without explanation. As we send a complete section box with nice strip of fdn., and printed directions for fastening it in the frames, by mail, for 5c., we will not attempt any description here. The cut on the left, shows one of the broad frames containing 8 sections, and A, A, are the ends of the hive. B, B. are the end strips that are nailed under the cover of the hive, and D is the cover itself, before being nailed on to B, B. C, C, shows the shoulders that hold the cover on the upper stories, while the bevels hold it securely in place, and exclude rain and wind.



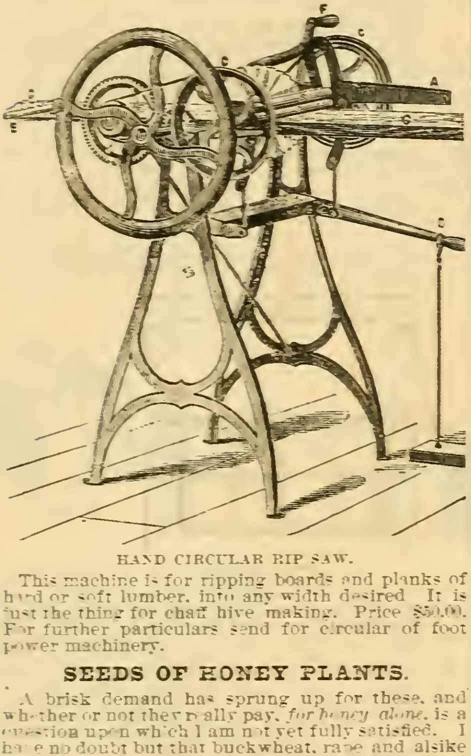
CASE FOR THREE SECTION BOXES WITH SEPARATOR.

A case of 3 section boxes, separators and fdn. complete, as in cut above, 10c; if sent by mail, 25c. This arrangement is intended for box hives, or for tall frame hives. If preferred to the frames, they can also be used on the L. hive. This arrangement is essentially the same as the one used by Doolittle and Betsinger. As the price is very close, no discount can be given on larger quantities.

Section honey boxes, 8 in a broad L. frame, furnished with fdn. starters, and tin separators, the whole complete, ready to hang in the hive as seen at No. 12 and 13 on the cover, 25c. By mail, 56 cents.



Clamps for grooving stuff for section boxes, made of heavy wrought iron, price 75 cents.



HAND CIRCULAR RIP SAW.

This machine is for ripping boards and planks of hard or soft lumber, into any width desired. It is just the thing for chaff hive making. Price $50.00. For further particulars send for circular of foot power machinery.

SEEDS OF HONEY PLANTS.

A brisk demand has sprung up for these, and whether or not they really pay, *for honey alone*, is a question upon which I am not yet fully satisfied. I have no doubt but that buckwheat, rape and alsike clover, sometimes yield honey enough to pay all expenses of cultivation, aside from seed, hay, etc.; but I very much doubt whether any one ever got enough from mignonnette, motherwort, catnip, etc., to pay for the labor of raising the crop. Notwithstanding all this, I believe in raising honey plants just for the fun of seeing the bees work on them, if nothing else, and I have now got a patch of turnips, "Seven Top Turnips," in full bloom, that are worth to me a full $5.00 bill, just on account of their beauty, and because the bees are humming over them so constantly, and in such very great numbers.

I have for years had dreams of a honey farm, with acres of flowers of different colors, blooming at different seasons, and keeping the bees away from the stores and groceries when we have a dry spell in the fall. At the present writing, this dream seems to bid fair to be realized, and if I do not succeed in raising tuns of honey, I think I can at least supply you with all kinds of honey plant seeds. I am going to have a dandelion bed, and if we cannot make them bear blossoms as large as a tea-cup,—well, I think, then, I shall have an acre or two of mammoth Russian sunflowers, and if nature does not smile broadly with all the colors of the rainbow, as the different fields come successively into bloom, it will be because there is no such thing as making her smile broadly. About 6 years ago, I planted nearly 4,000 basswood trees on a piece of 10½ acres, and they are now just beginning to bear blossoms; the sight of them when they first leave out in the spring, is worth to me, well, all the speculation ever cost me so far I think, and if I should live to see a house apiary—it is 1½ miles from our home, so you see we must have a house apiary, to have the honey safe from depredation—in full blast amid the spreading boughs, bending with honey, and roaring with myriads of yellow banded Italians,—well, I guess when that time comes I shall have faith in raising honey plants, for honey alone, if I have not now.

ALSIKE CLOVER.—Can be sown almost any time, but perhaps gives best results for seed, when sown in April or May. About 4 lbs. are required per acre, and it does not blossom much, until the second year. Its treatment and cultivation are much the same as for common red clover, but the seed is saved from the first crop. Fresh seed raised near us, so that we know it is free from dangerous seeds, price per lb. 25c; per peck, $3.60; per half bushel, $7.00; per bushel, of 60 lbs., $13.50. If wanted by mail, add 18c per lb. for bag and postage.

BASSWOOD.—Such poor success has attended all efforts so far as I can learn, in growing basswood trees from the seed, I do not offer them for sale, but would recommend the small trees as described on page 3.

BORAGE.—A strong, hardy, rapid growing plant, bearing a profusion of blue flowers. It may be sown any time, but will, perhaps, succeed best, at about corn planting time. As it grows tall, and branches out considerably, it should have plenty of room. I know that bees are very busy on it, almost all the day long, but I do not know how much honey an acre of it would furnish. It is easily tried, because it grows so readily. Prices, same as for catnip.

BUCKWHEAT.—I think we shall have to regard this as the safest investment we can make for artificial pasturage, although, in many localities, it yields honey only occasionally. About 3 pecks per acre are usually sown, and it may be sown in April, May, June, July, or even August, but in the latter month, it would furnish only blossoms for the bees, and no seed. The best results for both honey and seed are obtained by sowing in the latter part of June. If you want much honey, you must have good soil. We can furnish the common kind for $1.50 per bushel, 50c per peck, or 5c per lb.; the silver hull for $2.50 per bushel, 75c per peck, or 10c per lb. If wanted by mail, add 18c for bag and postage.

CATNIP.—This has been very much talked about, and we have record of some experiments with an acre or more, but if I am correct, no one has ever yet seen a barrel of catnip honey. Still, some one may raise catnip honey by the barrel, and make money at it. If you wish to try, we can furnish you good seed, that we have tested ourselves, for 20c per oz., or $2.00 per lb.; 18c per lb. extra, if wanted by mail.

CLOVER.—The best honey in the world, all things considered, is, without doubt, that obtained from white clover; but, unfortunately, there seems to be a difficulty in saving the seed, so it is generally allowed to grow spontaneously. The nearest we can come to it, is the White Dutch clover, and as I have never seen it grow, I can tell you but little about it. I think we will all have to sow some seed at once, and see how it is. Price per lb., 60c. If wanted by mail, add 18c for bag and postage.

SWEET CLOVER, ALSO CALLED MELLILOT.—Same price as above. Great things are claimed for this, but I have not found the bees particularly fond of it. This I do know, it is awfully hard work to pull the roots out of the garden, when they come where you do not want them.

DANDELIONS.—I presume every body can get dandelion seeds and roots without buying them, but for all that, I have almost as much faith in an acre of cultivated dandelions, as in the same amount of ground devoted to any other honey plant. Your seed catalogues put the price at 50c per oz., but it strikes me, I can get some of our boys and girls to gather seed cheaper than that. We shall see.

MIGNONNETTE.—This is a great favorite with the bees, and also with those who are raising plants for their bees; but, although we sell great quantities of the seed for bee pasturage, I am not sure that any one has ever made it pay in dollars and cents, for the honey alone. It will pay, without any doubt, to raise the seed, especially, if the price keeps up any where near what it is now; but for honey alone—who will demonstrate its value beyond doubt? The tall varieties seem best suited to the bees, but are not as fragrant. It should be sown in the spring, and as the seed is small, it should have fine clean soil, and be covered lightly. This plant seems to have a rare capacity for standing frost, and bees may often be seen busy upon it clear into Oct. I should very much like to see an acre of it, on our honey farm. The seed is 20c per oz., or $1.40 per lb. If wanted by the lb., add 18c for postage. Parson's

New Giant Mignonnette, we can furnish at 80c per oz.; Grandiflora, at 25c per oz. All the advice I can give in regard to these more expensive kinds, is to try them.

MOTHERWORT.—This is a near relative of the catnip, and is probably equally valuable as a honey plant. Prices of the seed, same as for catnip.

MUSTARD.—We sent all the way to France for Chinese mustard seed, but, after we got it and had it in bloom, the bees did not care half as much about it, as for our common wild mustard. We can furnish the Chinese for 25c per oz., or $1.75 per lb.; the common, for 10c per oz., and 40c per lb. Add 18c per lb., if to be sent by mail.

RAPE.—Rape pays well to raise for seed alone, because it is used for making oil; we have also had many reports of its great value as a honey plant. The great trouble with it, in our locality, is the black flea. The first leaves of the plant are eaten off almost the moment it appears above ground, and sometimes a whole acre will furnish scarcely a blossom. It is said that, if sown between the 20th of June and the first of July, it will generally escape this pest, as it usually comes earlier in the spring. About 3 lbs. of seed are needed for an acre, and it is sowed broad cast like turnips. It frequently blossoms within 4 weeks after being sown. It keeps in bloom nearly 4 weeks, and gives great quantities of beautiful honey, when all things are favorable. The price is 15c per lb. If wanted by mail, 18c extra.

SUNFLOWERS.—Of course, I am going to have an acre of sunflowers, and as I want to have every thing on a large scale, I think I will have the mammoth Russian. They are—well, the first time I ever saw one of the seeds, I had a good laugh, just to think of old Dame Nature's getting up sunflower seeds so preposterously large. While I think of it, as I would like to have you all laugh too, I will send you a few seeds for nothing, if you will just say, on a postal card, you would like them. If you want more, the price will be 40c per lb. Add 18c, if to be sent by mail.

TURNIP.—Last, but not least, is the Seven Top Turnip I have before spoken of. I shall get quite a nice lot of seed from my "turnip patch", and friend Kaye will probably help me to furnish all that may be wanted. I think we shall charge 10c per oz., or $1.00 per lb., unless some of you can furnish it a great deal less, and I hope you can, for I do like to see nice things cheap. If you want the turnip seed by mail, we shall want about 18c per lb. extra.

Any of the above seeds will be sent in 5c packages, to those who would like just a few to try.

SMOKERS.

Bingham makes a very nice smoker indeed, and L. C. Root makes a very nice (Quinby) smoker indeed; there are points in each one of them that I particularly admire. While the former has, perhaps, a little the best blast, the latter is much the simplest and strongest, for the attachments of the fire pot to the bellows are made of maleable iron. But, "which is the best?" keeps coming from all quarters. Candidly, I do not know. I do not know which is the best bee hive, or which is the best bee journal, or bee book, and I do not know how I should know which is the best smoker. I have repeatedly told you which smoker *I* like best, but it does not follow, by any means, that everybody else will think as I do, and were I to declare broadly that my things are better than any body's else, I am really afraid I should not sleep well nights. If you do not like my smoker or anything else I sell, you may send it back, and I will allow you all you paid for it, and you can try some other, but you must be your own judge, as to which will suit you best.

Bingham's small smoker is $1.00, or if sent by mail, $1.25; the standard size is $1.50, or if sent by mail, $1.60; the extra large size, is $1.75, or by mail, $2.00. The Quinby smokers are $1.25, and $1.35; if sent by mail, 10c extra.

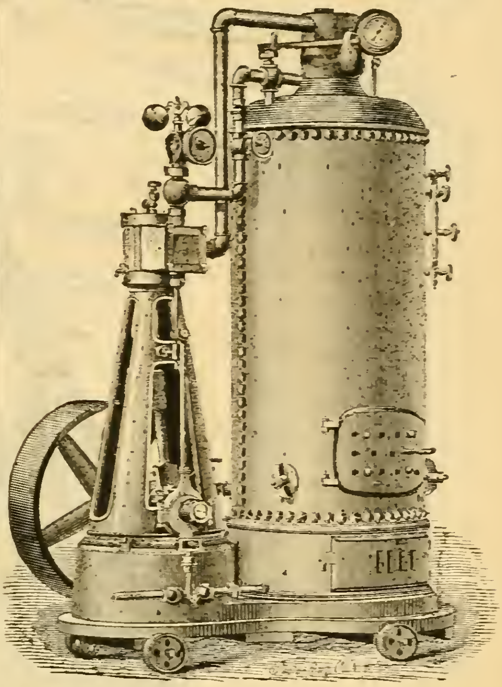
Now, I shall make more money selling you those above than our own Simplicity smoker, at 75c; so you see I can afford to be unprejudiced. I wish you to have whatever will please *you* most, and do you most good, and I am trying not to be selfish or stubborn and headstrong. More than 1000 of our own are now in use, and only one has ever been returned.

SPRING BALANCE,

Is shown at No. 15, on the cover, a nice article.......$8 00

These scales are made weather proof, and when arranged to suspend a moderate sized colony, may be left out all summer. As the figures on the dial are large and plain, we can see at a distance the average yield of honey per stock, each day or *hour* even. When weighing stocks for winter, they shorten the work very materially.

STEAM ENGINES FOR HIVE-MAKING.



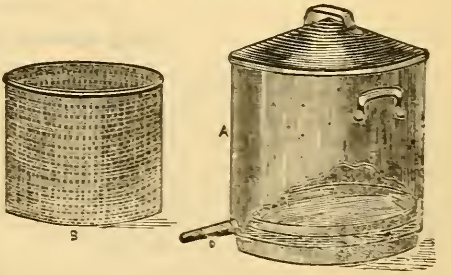
2 Horse Power Engine and Boiler,.............$150 00
3 to 4 Horse ,, ,, ... 250 00

These Engines are tested at 300 lbs. pressure, the different parts are made interchangeable, the work and material is guaranteed first class, and it is claimed that it is practically impossible to explode the boiler.

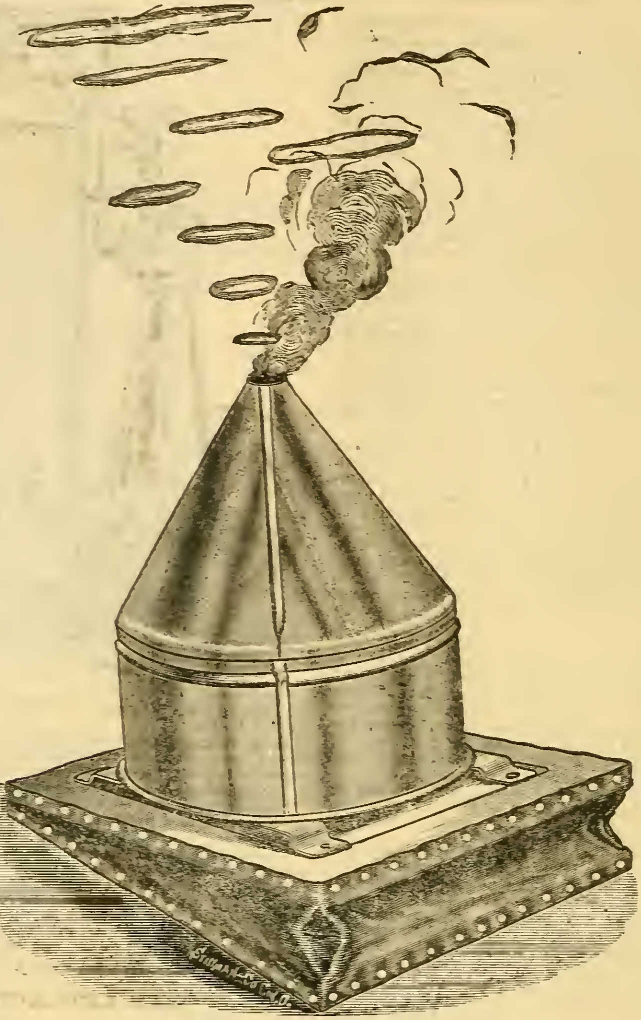
They are mounted on wheels, rendering it convenient for moving, and are complete in all parts, except the smoke stack, which should be a 6 or 8 inch stove pipe.

I have taken pains to look this matter up in regard to these small engines, and those we offer are I think, fully equal to anything made for anything like the price. They are furnished at the above prices, at the factory in Corning, N. Y. Although engines of 1 horse power are offered for sale, we think it will be much better to purchase one of not less than two horse power as above. The one horse power Engines are no cheaper.

WAX EXTRACTOR.



Price $3.50. This machine is very simple, for we have only to throw our refuse comb into the basket B, and set it inside the can A. Now put on the cover, and place it over a pan or kettle of boiling water; the steam will ascend all around B, and the melted wax will run down and flow out of the tube O. Under the end of this tube, is kept a pan to catch the wax. As fast as the comb sinks down, more can be put in, and so on. The machine requires no attention, except to fill the basket B. If you have no kettle that is 12 inches across the top inside, we can furnish a copper bottomed steam generator for $1.50.



THE SMOKER I PREFER.

THE SIMPLICITY SMOKER.

It don't tip over, never "goes out," makes nice rings of smoke to please the children, and there are "lots" of other nice things about it that I can not think of now. When you get one, you will know all about them. It, is, in fact, such hard work to make it go out at all, that we have been obliged to add a damper to it since the engraving was made. You can burn anything in it, chips, "patent right hives" that you do not want, stove wood, corn cobs, &c., &c. The nicest material I have ever used, is peat, but ours is all gone, and I don't know where to get any more. Very dry corn cobs make a splendid smoke and last a long while, but it is some trouble to light them the first time. After you have been using them, if you extinguish them by means of the damper, you can light the charred fragments next time, with a match. You can chop the cobs in pieces with a hatchet, or let the children do it, and then keep them with some matches in a box where they will always be dry. Your smoker should also be kept in-doors out of the rain, but if you are sometimes careless, as I am, and get some part of it broken or injured, we will sell you the different parts at the following prices. The postage is given in the left hand column.

25	Smoker complete	75
	A larger size will be furnished if wanted, for 25c more.	
15	Bellows complete	40
10	Tin case for fuel	35
3	Leather for Bellows	15
1	Pair of steel springs	10
5	Top of tin case	10

After you have bought one smoker, if you want another for your neighbor, we will give you 10 per cent off. If you will buy a whole dozen, and take them all at one time, you may have them for 50c each, and that is the very best we can do in the way of wholesaling.

P. S.—If you wish to see the revolving rings, get something that will make a perfect cloud of smoke, peat is best, and tap briskly on the bottom board. When you can get the knack of it, you can have the air full of them, all spinning away like——There! I almost forgot one more idea. Whenever the children get stubborn and really need punishing——on a second thought, I think I won't tell it after all.

test the accuracy of your work, pile the boards on each other, and see if they are all exactly alike all around. I should, right here, suggest that you have your work nicely piled up, all the time, and a couple of willow clothes baskets, set near the saw, will be just the thing to toss all your odds and ends into. One of them should be set directly under the table, to catch all the sawdust. *Do not let a scrap or splinter be thrown on the floor.* Always put them in the basket. It will pay well in dollars and cents, and then, when a visitor comes in, he will say,

"Why, what beautiful work you are doing, and what a pleasant place this is." On the contrary, if you have your lumber all scattered about, and sticks breaking and crashing under foot among your tools, he would be very apt to say,

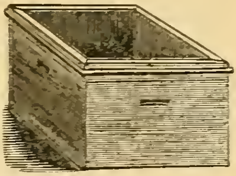
"Well, I'm glad I do not have to work and drudge through life as that fellow does."

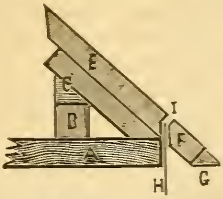
Another thing: if your stuff is scattered about, you will very likely miss some, and, after you have changed your gauges that were set so nicely and carefully, you will have to go and set them over, just to finish the few odd pieces; this second time you will be likely to do it in a hurry, because you are cross about having been so careless, and perhaps this will be the means of making a bad job of the whole lot of hives. *Keep all your pieces piled up square and true*, and all together, so that none can be missed.

You will remember that we had some longer pieces, that came from the extreme ends of the boards. In cutting them up, you can save lumber, by making two sides or three ends of these pieces, or even two sides and one end, as the stuff may happen to come out.

While cutting up stuff, I would have a gauge of the length wanted, right handy, and every little while, just try a board, and see if it is just exactly right. If you have a board that you know is just right, stand it on end, beside the pieces you are cutting, and then pass your finger along their tops, and you can readily see which is longest, if there is any difference.

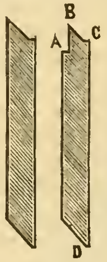
Our stuff is now all in two piles, and, if we wish to come out even, there should be just as many end boards as side boards: that is, the two piles should be of equal height; as you come pretty near the last, you can manage so as to "fetch up" the pile that is lowest. You will remember that these boards were cut off, so that the short ones just fill the iron gauge frames crosswise, and the long ones, lengthwise; well, now we are to mitre or bevel the corners, so that, when four of the boards are set up in this shape—see cut—the iron frame will just drive over them. You will observe that the top of the hive shows that the boards are put together just like a picture frame; and to saw this mitre is our next job. Put on the beveling platform, as before, and, with your cut off saw keen and sharp, cut off a corner so as to leave a sharp feather edge on each end of every board. You can tell when your gauge is right, by the way in which the iron hoop drives over the four boards. If the angle is just right, the corners should close up so as to leave scarcely a visible crack where the joint is. All the boards are, of course, to be mitred at the corners in this way, and then we are ready to take off the strips that go around under the covers. If you will look at the cut of the beveling platform, you will see beside it, a 3 cornered bar with a couple of wires twisted in it. This bar is to be fastened, by the wires, to the planed iron track on which the movable side of the saw table slides, the movable side being removed. Now set the beveling platform so close to the saw, that you can cut the strip clear off, leaving the desired shoulder, as in the cut.





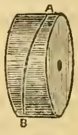
TAKING OFF THE STRIP UNDER THE COVER.

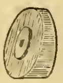
In the above cut, let A be the stationary side of the saw table, B the square end of the parallel bar to said table, and H the saw, C is the beveling platform screwed to B, E the side or end of the hive lying on it, F the strip that goes under the cover, and G the 3 cornered piece that is wired to the iron track. This last piece is to rest the square edge of the board against while pushing it through, to cut off this strip. You will observe that the table is screwed up high enough to allow the saw to cut just into the notch I, that we sawed in all the pieces before they were cut up. Our side pieces are now finished, and the ends are all done, except cutting the rabbets for the frames to hang on. This operation is so simple, it need hardly be described. In the accompanying cut you will see a cross section of one of the ends that has been rabbeted, and one that has not. We first saw in ⅜, and then saw down from B, to meet it. As the lumber is ⅞, if we take out ⅜, we shall have just a half inch of wood left. When the metal rabbet is in place, and the frame swung in the hive, the top of the frame should be just on a level with the shoulder C. As our frame is just 9⅛ deep, and we want just about ⅜ under the bottom bar, making 9½ in all, we want just 9½ inches from the shoulder C to the bottom edge of the boards D. This will insure just ⅜ between the upper and lower frames when the hives are used with two stories. If our metal rabbets are made to stand just ¼ inch higher than the wood, and the projecting arm of the top bar is also ¼ inch, the shoulder A will be just ½ inch lower than the shoulder C,



You will observe that I have calculated for ⅜ between the upper and lower frames, and between the bottom of the frames and the bottom of the hive. Well, ¼ inch would be still better than ⅜, if we were sure the lumber would never shrink by after seasoning so as to make it any less than ¼ ; as it will shrink some in spite of us, I think we would better calculate on ⅜. This is also the distance we need between the frames and the outside of the hive, all around; not more than ⅜, and not less than ¼. In cutting out your rabbet, you will, of course, first cut down from A, and I would gauge from D instead of from the sharp edge B, thus avoiding inaccuracy. When you cut in from B rest the stuff on the shoulder C, and you will have no trouble in getting the saw cuts to match nicely. If you have a rabbeting head, you can take the wood all out at one operation, but then you have shavings instead of strips, and it takes a little more power. The strips are of no particular use, it is true, but we find them very handy for sticking up covers, as you will see presently. While I think of it, in the absence of a foot power saw, you can make the bevels and shoulders by grinding a plane in the shape you wish ; in this way you can get very nice joints, but it is rather slow business.

The body of our hive is nearly all done except the handles, or rather hand holes that you lift them by ; these are made with a wabbling saw. Sometimes our saws have a fashion of "wabbling," just when we would rather they wouldn't, and it would seem to be quite an easy matter to make one wabble : so it is, but, with the Barnes mandrels, it is not quite so easy after all ; because they have their saws run on a shoulder that is considerably larger than where the screw is cut. The way in which we make a saw wabble ordinarily, is by a pair of wooden washers like this cut. But the Barne's saw arbor requires that we, after making the washer as above, cut on the side of one of them a shoulder something like this, to hold the saw true. The idea is to have the saw securely clamped between the two wooden washers ; to have it clamped so it cannot really slip round, or out of true ; I mean by out of true, so that the teeth are just as long on one side as on the other. Unless you have it so, the cavity will be deeper at one side than at the other. The first washer should be thick enough to allow the saw to clear the table, and, as the movable side of the table is adjusted, we can give the wabbling saw all the space it needs. You will need both the parallel and cross cut gauge for this business, and they are to be so set that, when the boards of the hive are carefully and slowly dropped down on the saw, one end at a time, a nice cavity for the fingers will be cut. To smooth out the bottom of the cut, you have only to move your board slightly side ways just before you lift it off the saw. This trims off the strings, as it were, left between the saw teeth. I would have these handles made in the sides, as well as the ends, for it is often convenient to lift a hive, when the ends, one or both, are not convenient to get at ; for you must remember the simplicity hives can be placed tight up against each other, as there is nothing in the way of so doing.

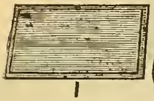


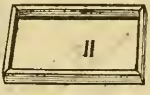


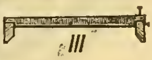
HOW TO MAKE THE COVERS.

For those you will need pretty good lumber, and it must be of such width that, when fully seasoned and finished, it will be 16 inches; or, to make it plainer, each cover board, when done, must exactly fill the iron gauge frames we pictured on page 118. The length we can manage without any trouble ; but the width, taking into consideration how prone to shrink 16 inch boards are, is a little more difficult. If our covers are not seasoned thoroughly, they are very apt to split from end to end, after having the sides nailed as securely as we do it.

I would first cut all the boards in two, in the middle, using a measure, to prevent cutting in such a way as to spoil a cover, and then rip off a strip so as to reduce all to 16½ inches. This gives us one straight edge, and shortens the boards so we can handle them. If you have no assistant, you can cut them in two once more, and this will enable you to handle them very readily. With the straight edge against the cut off bar, cut your boards up carefully, to 20¼ inches long, or just so as to slip in the iron frame. If your lumber is seasoned as well as you can get it, you may now bring it to 16 inches width, or so it will just squeeze into the iron frame sideways. After this, it is only to be rabbeted. That you may understand perfectly the purpose of rabbeting and cross nailing I will give you some cuts. You remember that we had 2 inch strips from both sides and ends, when we made the bevels on the hive. Well, four of these strips placed in the iron frame, and nailed, will look about like Fig. 2.







HOW TO MAKE THE COVER.

Fig. 1 shows the cover board all rabbeted, ready to be pushed into Fig. 2. Fig. 3 is a cross section of the cover, and shows how the nails are to be driven. If the covers are ⅞, you will have a half inch of wood to leave, as shown, after taking out ⅜, to get the shoulder; but, as much of the lumber will dress more than ⅞, and some of it a full inch, I would plane it just enough to get a smooth surface, and no more.

Now supposing you cannot get perfectly seasoned lumber (and, in fact, according to my ideas, the lumber as it comes from the lumber yards is never seasoned as it should be for covers) what shall we do? I will tell you; get out your covers just as I have mentioned, except you will omit rabbeting one edge. Pile the boards up, placing between them the sticks that came out of the hives when we cut the rabbet; or, if more convenient, use pieces of lath, or any strips of an even thickness. Put the sticks close to the ends of the covers, and pile them up clear to the ceiling of your room; the higher the better. Now, when you wish to use some cover stuff, or fill an order, take down as many as you want, and rabbet the remaining edge until the cover justs slips into the frame.

NAILING HIVES.

We use 6 penny finishing nails, and put four nails in each side all around the hive. Nail the corners securely, first, and drive your nails as close to the corner as you can, without having the nails split out. Never let the point of a nail show itself, under any circumstances, and do not have any splitting or botch work, if it takes you a whole forenoon to nail up a single hive.

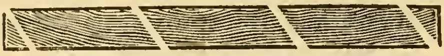
To work to good advantage, a pair of iron frames are needed, although you can get along with but one. In your first attempts, it is hardly to be expected that you have been able to get the hive stuff so it will just drive into these frames, and I hope you have been on the safe side, and made your boards a little larger, if anything. If such is the case, you are to have one of the neat, little, iron, smooth planes to be had so cheaply now a days, and plane off the ends, until they are just a tight fit. The iron frames will draw them up, so that you can hardly see where the joint is. Now nail them as directed, and cross nail. The cross nails should come so near each other, that they almost touch. We nail down through the cover with 4 penny nails, and cross nail into the end with 6 penny's, as before.

You cannot very well get lumber that will make all the covers so as to be weather proof; therefore we sort out the poorest, and use them for bottom boards. By this means, we have the covers all good, and no lumber wasted. It is for this reason, and that we may have as few separate pieces in our hive as possible, that I advise making the cover and bottom boards all one and the same thing. If you are out of the one, you can use the other, and vice versa. Therefore, the simplicity hive is nothing but this plain simple body, and the plain simple cover; and, if we make these two pieces just right, we are *all* right.

HOW TO MAKE THE CHAFF HIVE.

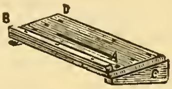
This is all, except the corner posts, made of cull lumber, which can be purchased at any lumber yard; we get it for $10. per M. Get it long enough before hand to have it piled up and seasoned, if you possibly can; if you cannot, you must manage to have the stuff piled up so as to season after it is got out; it will season very quickly in these thin narrow strips, and so we often cut it up, unseasoned, when we are behind on orders. Fix your table, as before directed, and cut your whole pile of boards, before being planed, into pieces two feet long. If you do not cut them all so exact, it will not matter a great deal for this hive, as you will presently see.

After your boards are all cut up, put on your rip saw, and split them up 3 inches wide; but instead of cutting them square, cut them on about the angle shown below.



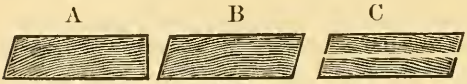
HOW TO CUT THE STUFF FOR SIDING.

If you find any bad knots or shakes, do not split them, but pile them up nicely at one side, to be used as rough bottom boards. This ripping can be done either on the foot power saw or with the hand ripper; we use the latter, and I think it does the work more rapidly. To cut the pieces on the bevel, you are to screw a bevel shaped piece on the saw table.



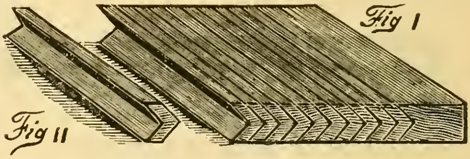
PLATFORM FOR GIVING THE SIDING THE PROPER LEVEL.

Two wedge shaped pieces, of which only one is shown at C, are used to give the board the proper inclination; the other one is supposed to be where you see the nail holes, at D. A is where the saw comes up through, and B is a square bar that the edge of the rough lumber is rested against. It is fastened to the table by screws put through the table top from the under side into these pieces C. With the hand ripper, we screw the two pieces fast to the two light wooden bars that constitute the only wood about the machine.



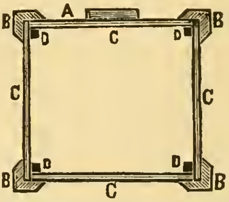
The first piece that comes off, will be like A; turn it over, and run it through again, and it will be like B; the next opperation is to split each piece, like C. This you will have to do with the hand ripper, for the foot power saw, would not reach through so far. If you do not split the pieces exactly in the middle, it does not matter, and a very thick one occasionally will be all the better, to give the hive strength without extra expense. You can plane this siding by hand very cheaply, or it may be done on the cigar box planer; if on the latter, you will be obliged to reduce them to a uniform thickness unless you choose to save out the thickest pieces, and plane them afterward with the planer a little higher. Plane only the one side just left by the saw. If you are not going to use this siding at once, pile it up crosswise, as coopers do their staves, until it is thoroughly seasoned and straight.

Our chaff hive is built by nailing these pieces of siding to corner posts with planed side outward, of course. As nails have a fashion of drawing out when exposed to the sun, (some carpenters say the sun pulls them out,) we will drive them all from the inside, and then, if "Old Sol" tries to pull them out by the feet, he will have a tough job, and will only draw the heads up tighter. The corner posts that we use are made of solid wood, and are cut from 3 inch plank. The plank should be so clear from knots and shakes, that there will be no danger of the pieces breaking while nailing into them. Cut your plank, which should be as wide as you can get it, into pieces 22 inches long. Now with the beveling platform that I showed you in hive making, you are to cut out the corner posts in this way:



HOW TO MAKE THE CORNER POSTS.

You will observe that the saw goes in at each side until the cuts meet, so as to take out pieces like fig. 2. After you get them all out, you are ready to nail up the outside of the hive. Lay two of your corner posts, as shown above, on your work bench and have them 2 feet and 2½ inches apart. To get these dimensions without measuring, I would nail a couple of strips to the bench just the right distance apart; also a third across the end, that we may always have the hive square and true. The chaff hive is not quite square; it is 1 inch narrower on the side where the entrance is, therefore, when you are nailing the back and front, you are to slip a strip of wood 1 inch wide between one of your posts and your stop. Our siding, you remember, is just 2 feet long; well, the pieces on both front and back go clear up



EXTERNAL SHELL, AND CORNER POSTS OF CHAFF HIVE.

into the corners of the corner posts. This will prevent the side strips from coming clear up by ½ inch, as shown below.

A is the entrance, B, B, B, B, the corner posts, and C, C, C, C, the siding. Now after we have got the siding nailed securely with the beveled edges so arranged as to keep the rain out of the chaff, we will nail in each corner an inch strip, shown at D, D, D, D; these are put in with heavier nails, and lock the whole structure most securely.

As there is no need of uncovering the chaff part when we uncover the hive, we make the cover so as to extend over the interior only, and have a permanent cover over the space containing the chaff. This permanent cover is our next piece of work. Get out some long strips, just as you did the siding, only have them ¼ inch wider, preserving just the same bevels on each side. Plane it on both sides down to 7-8, and then cut out a part as shown in the diagram:

Fig I

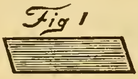


Fig II

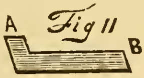
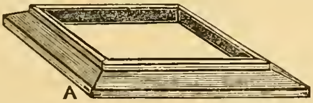


Fig. 1 shows the piece before taking out the strip, and fig. 2, after it is done. You are to cut in ¼ inch at A on the same bevel as the sides, and then 2 7-8 at B to meet the other cut. Now turn your cross cut bar at an angle, just as if you were going to make a picture frame, and make a picture frame in reality, of the stuff shown at fig. 2. The inside dimentions of the frame must be just 19¼ by 20¼; you must be very exact about the 19¼, for the frames will not have the right play, otherwise; That you may get the proper idea, I will give you a diagram of this frame.



FRAME THAT HOLDS THE COVER.

To make the joint waser tight at the mitres, a saw cut is made in each end of each piece as shown at A, and after the frame is nailed at the corners, a strip of tin is pushed in. The outside of this frame will probably be a trifle large

To be Continued.

ERRATA. On page 153, middle of 1st column, read 11½ inches, instead of 11⅝.

JAN., Feb., and March Nos. are gone, but the dedemand is such that we will pay 10c each for them, to supply those who want the back no's. We will sell them for 15c each. Is not that a good speculation, to have the reading of a journal, and then sell it for more than it cost you?

Heads of Grain,

From Different Fields.

THE following is only one of many similar letters.

Allow me to enquire if N. C. Mitchell's patent March 9th, 1875, prevents persons from using your Simplicity bee hive; especially your division boards or chaff cushions, as described in GLEANINGS for November, 1877, pages 299 and 300. Mitchell's agent (see enclosed circular) threatens all using your hive and division board with prosecution. Several bee keepers are beginning to adopt your hive, in this vicinity.

Davenport claims to have papers to show you *dare* not use division boards, but failed to find them in his bundle of documents. If he or his hive is a fraud, let me knew, and he will be advertised. He is making a big thing out of bee men (mostly Germans) in this part of Michigan. R. E. SHEPARD.

Mt. Clemens, Macome Co., Mich., April 22nd, 1878.

Mitchell's hive is simply the exploded Adair hive, or what we called the Standard hive, and had illustrated in our lithographs of the hexagonal apiary, several years before he got his patent. It is a direct copy of this, as you can see by looking at the picture. His patent is on a complicated division board, that he does not use, nor any body else, as you will see by examining his claim. The Simplicity hive was described, with directions for making, in the *A. B. J.*, more than 10 years ago. He and his agents are in more despicable business than downright thieves, and highway robbers.

The 75c smoker is splendid. M. L. WILLIAMS.

Vanceburg, Ky., April 18th, 1878.

I saw Harry Black's smoker that he got of you, and never saw anything to beat it. I told him that I must have one as soon as possible. You will find $1.00 enclosed, 75c for the smoker, and 25c for the postage. Please send as soon as possible, and oblige THOMAS O. DURALL.

Spencerville, Mont. Co., Md., April 18th, 1878.

OUR FRIEND WINDER.

The following came to hand enclosing the old letter from Mr. Winder, acknowledging the receipt of the $30.

I send you this for preservation, so that, if Gray or Winder enters into the business of selling *bees again*, he may be published. About the time you put Winder in the Humbug and Swindle department, he sent me $5.00 in a letter with the threat, that if I did not keep quiet, *he would not refund the ballance*, which he has faithfully observed.

J. P. PARKER.

Henry Station, Tenn., Dec. 28th, 1877.

From this it appears that Mr. Winder has already paid $5. of his half. Now, friend W., pay the other $10., and we will have a receipt from Mr. Parker in full, and then I will accept your advertisement with pleasure. Perhaps this sounds like dictating for another, but it is the only way out of the difficulty I know of.

DIPPING WAX SHEETS.

We had a good deal of trouble with the two dipping plates you sent with the 5 inch fdn. machine. Tried small piece of board; the wax slipped off so nicely that I made two plates of pine, quite thin, same width and length of others. To say the least they are "peelers." They need no starch or any other fussing. The sheets slip off almost too easily. Plane the boards (which must be of straight grain and not "caty") smooth, bring each edge and bottom to a thin edge, leaving the plates or rather boards thickest in center. D. D. PALMER.

Eliza, Ill., April 1st, 1878.

A 17 YEAR OLD BEE-KEEPER.

I got my start from a small swarm which father was ashamed to keep, and now have 11 swarms. 7 of them are in box hives, but I intend to transfer them soon; 1 is in the American, 1 in the Langstroth, 1 in the Quinby, and 1 in a hive that father got up. I have not lost a stand of bees this winter. I have 5 different bee books; viz., Langstroth, Quinby, H. A. King, A. J. Cook, and Mrs. Tupper. I am 17 years old. WM. LINDON WILLSON.

Baker's Corner, Ind., April 3d, 1878.

The Fountain Pump came to hand to-day, all in order, as far as I am able to judge. It came via Chicago, Milwaukee & Watertown, on the principle, I suppose, that the "farthest way round is the surest way home." It is not a steam engine by any means, but it will throw water to the top of the house or over it, for that matter. Upon arranging the spray attachment, the first comment I heard, by Mrs. L., was "how it would sprinkle clothes!"

Please read over what you say about extractors, in GLEANINGS, page 126, and then imagine *your fate;* for, sure as you live, my extractor (your make) does throw a fine spray of honey, in all that region round about, unless I submit to the annoyance of a cover. Too much wings. D. P. LANE.

P. S.—Please don't *worry* over this sticky subject.

Koshkonong, Wis., April 10th, 1878.

Perhaps I should have added, when speaking of extractors, that the first we made had "wings," instead of light rods, to support the revolving frame, and that these wings did throw the honey over the top. Although we sent those out some years ago, we will pay all expense of having a tinner make them over, so that they will not blow the honey over the top. This offer refers to all machines we have ever sold.

I know the express companies frequently do just as you have said, but they have now given us the privilege of fixing the route, &c., ourselves, and I think we can do better.

PROPOLIS AND FREIGHT ON HIVES.

The 25 hives in the flat, &c., which you shipped the 21st of last month, arrived all right. Freight charges were $6.55, which we thought reasonable.

I wish Novice would tell us how to take the propolis off our fingers, so we could shut up a hive and go in and make bread or pies.

HANNAH W. WILLIAMS.

Springville, Iowa, April 9th, 1878.

The freight on this lot of hives to Iowa was about 30c. per hive; this seems pretty expensive, and, where they send from so great a distance, we certainly ought to furnish extra nice work. Although no one has complained, I have felt like complaining, a great many times, at the work we have been obliged to send out. As we are doing a little better every day, perhaps I, too, shall be satisfied some day.

I do not believe that propolis ever bothers you half as much about making your pies, friend Hannah, as it does me with my type writer. You see it makes my fingers stick to the keys, and then the ideas that are always bubbling over in my brain can't get out, and I get "hopping mad." I try to say nothing, however, but just get the benzine bottle, and this takes off the propolis, but it takes so much time, that I find it a real nuisance. One of the girls who has some bees says she uses alcohol, and that it will clean her fingers so perfectly, that no soap or water is needed at all. The alcohol is rather expensive compared with benzine, but, as it is clean, and has no bad smell, I think it will, perhaps, be cheapest where one's time is valuable.

REPORT ON CHAFF PACKING.

A year ago I bought 2 swarms of black bees; not liking the hives they were in, I transferred them, and increased to 6. I have 5 pure Italian queens and 1 hybrid; the pure ones are not all purely fertilized. In the fall I made cases of ½ inch lumber, large enough to allow 4 inches of chaff all around the sides, and from 4 to 6 inches on the top; I put the bees on from 6 to 8 frames, set the hives into the cases, packed in the chaff, and they have all come through in splendid condition, and, it seems to me, have increased from ⅓, to ½, since February; they are stronger now than last fall. A good many of the frames are filled with eggs the second time already. V. PAGE.

Kennedy, N. Y., April 1st, 1878.

QUEEN NURSERY FOR HATCHING HEN'S EGGS.

You say that your lamp nursery will hatch queens, eggs, &c. I tried to hatch some hen's eggs last spring while hatching queens, but not one out of 20 that I had in, would hatch, but they were all spoiled. The queens all hatched; what was the cause? Temperature of nursery 85° to 90°. Don't say the eggs were bad, for eggs of the same sort hatched when put under a hen. [No name sent.]

Auburn, N. Y., Feb. 27th, 1878.

To hatch hen's eggs by artificial heat is a trade of itself, and the particulars would hardly come within the province of a bee journal. If you hatched one in 20, my friend, I think you did well, for your first experiment. I believe the eggs have to be cooled off once a day, about as they are when the hen goes out for food.

JOINER.

You are wrong about the green color of extracted honey being a sure sign of unripeness; we get a delicious honey here, from the male sumach, that is as green as bottle glass, even when it is capped over, and so thick it will hardly run. Don't condemn glass dipping plates without giving your readers a chance to try them; Stewart of Orion makes them work perfectly, and has no breakages. The Simplicity hive here is the favorite; I shall change my Nationals for them this season. I owe you a vote of thanks for the new all wood frame; I tell you candidly that metal corners and metal rabbets are too movable for me. I have had a strong swarm of bees cluster on the frames, all in the center of the hive, when first put in, and I never had one that did not slide the frames about in the hive more or less, when both corners and rabbets were metal. There is considerable bee fever here now; no bees for sale and several buyers. People seem just to have found out that there is, at least, "sweetness" in the "beesness", if not richness. I expect to see some failures as new hands try the frame hive. Rejoicing with you in the success of GLEANINGS, and the abundant custom that keeps those saws running night and day, I am yours truly,

R. L. JOINER.

Wyoming, Wis., March 15th, 1878.

I did not mean to say that your honey was bad, or that glass would not answer nicely for dipping small sheets. We have tried the small sheets, but our girls much prefer the galvanized iron, though they can make both work.

I have never known of the *bees* moving the frames about, as you suggest, but even if they do, I would not discard metal corners on that account. Last July a new swarm was put on frames filled with fdn., and I did not see the hive, and no one opened it until fall; yet not a frame was in the least out of place. Suppose they do get moved occasionally, cannot we open the hive, and replace them, easier than we can have our frames stuck fast every time we wish to open a hive? or cannot we afford to give each new swarm a couple of finished combs, just to keep everything straight, rather than to go back to *im*movable frames?

Bees wintered well, but it has been warm so much that there has been lots of robbing; hundreds of stands have been robbed. I lost four before I could stop them. WM. L. KING.

St. Joseph, Michigan.

TRANSFERRING OUT OF SEASON.

I have drones from tested queens, and queens which will hatch on the 8th instant. Do you think they will become fertile? (Yes.)

I have transferred bees every month during the last winter, and have not lost a single colony. Some were transferred with their comb, and some on empty comb, and were fed with "A" sugar.

S. W. MORRISON, M. D.

Oxford, Pa., April 2nd, 1878.

There! you that ask so many questions about its being possible to transfer at any time of the year, would better take an example of your friend above. You can do it, if you are careful about your work; but, if you know by past experience that you are not, you would better not undertake it.

AN APOLOGY.

To my surprise, last fall, in preparing my bees for winter, I found an Italian colony near where I introduced one of the Blakeslee queens, and am sure she left the hive that I put her in, and entered this one; hence my injustice to Mr. Blakeslee. The other one has only one band, but the bees are good workers. Please tell Mr. B. that I am sorry I can't see him in person, and offer him every apology that is due him, and that I am glad to take back every ugly word I said about him; but I would be ashamed to order a queen from him. M. L. WILLIAMS.

Vanceburg, N. Y., March 27th, 1878.

I am very glad to have you own up so frankly, my friend, and I have given this a place, because I fear that many others who sold queens, have been just as unjustly blamed as friend Blakeslee. If you feel you have done wrong, do not be ashamed to say you are sorry, or to send him another order. The whole matter illustrates how much need there is of going slowly, when you feel like fault finding.

ARTIFICIAL HEAT AND HOUSE APIARIES.

Although I have kept quiet for a long time, I have not been idle, but have been up and down several times. One year ago last fall, I started to winter 5 good swarms; 4 out of doors, and one in the boys bed room. I made an outlet, so they could go out and in, as the weather would permit, and they came through splendidly. But the four colonies out on their summer stands all died with plenty of honey, although I had them packed well with straw on the sides and top. Well, my hopes were 4-5 blasted surely; but now, for the one I had left. I extracted 153 lbs. of nice honey, and started in last fall with *six* good colonies. One became queenless, and one warm day went visiting one of her sisters, and forgot to come back; so their house is pretty full, and I have but 5 colonies to day. I repaired my house last summer, and made a bee room over my kitchen 11 by 22 ft., something after the style of your house apiary, and there I have kept my bees during the past winter. I have a register so I can heat the room from below, when the weather is cold, and shut it when warm. Not a bit of dampness has appeared in any of the colonies, and very few of the bees have died, and they do not consume more than half the honey they would out of doors.

Bolivar, N. Y., April 2nd, 1878. L. M. RAUB.

As friend Joiner suggests, bees seem to do well all sorts of ways of late, and is it not possible, that our former experiments with artificial heat were failures on account of the "epidemic" that might have been visiting us at that time? when I tried artificial heat in the house apiary, I had nothing over the bees but a single sheet of duck, and perhaps that was more the trouble than the *heat* that I thought killed them.

I have a queen raised late in October; she is now laying, but she produces nothing but drones; that is, they are all raised caps. If they should hatch out, do you think they will do to fertilize queens? If they will, and she continues to lay, I shall certainly be in good condition for some early queens. If you have any information to give me about it, let me have it. THO. C. STANLY.

Jeffersonville, Ills., Feb. 19th, 1878.

It is generally accepted, that drones from unfertilized queens are capable of fertilizing queens, and are, therefore, just as good as any; but we lack definite experiments in the matter, none having been made, if I am correct, since those of Baron Berlepsch, given in the Dzierzon Theory. I would suggest that you, friend S., and others experiment, and give us the results. Berlepsch decided they were just as good.

FEEDING GRAPE SUGAR DURING A DROUTH.

Would it be profitable to feed grape sugar to bees during spring, to insure breeding in our drouth of June, 1st to 15th?

Last year, there was over one week in which my bees did not have any *brood in any stage*, or any honey in the hive. This occurred in June, and I would like to avoid a similar state of affairs this season. J. S. WILSON.

Grinnell, Iowa, March 29th, 1878.

We have seen precisely the same state of affairs that you describe, and there can be no question, but that grape sugar would be of great benefit. We, last fall, fully demonstrated its utility in starting brood rearing, and we have sold many tons of it for this purpose.

HOW TO USE A SMOKER.

Please explain in GLEANINGS how you get smoke into a hive. We find it convenient to blow down much oftener than up. J. E. DEAN.

Fishkill, N. Y., April 4th, 1878.

Well, my friend, if we want to blow smoke down, we point the nozzle straight down and blow; if we want to blow "slantin'dicular", we turn the smoker "slantin' dicular", and so on. A smoker that has to be held right side up, like a baby, I should find rather "distressing," under the various trials that bee folks are liable to meet. If you are afraid coals may fall out of the small hole that forms the nozzle, you can push in a piece of wire cloth; but, as these soon get clogged with soot, they have generally been abandoned. To clear the smoker of ashes, etc., that may have accumulated whilst it has been standing still, we give it a vigorous puff or two before pointing it into the bee hive. I, as a general thing, carry my smoker about nearly upside down.

ARE STINGS INJURIOUS.

I sometimes think that it might be beneficial, for "the brotherhood" to know how far stings are injurious to the human system. In the A. B. J., Mr. Moon writes that he has lost a limb after months of lingering pain; and Mr. Andrews replies that he can heartily sympathize with Mr. Moon, as (I quote from memory) he has not had the use of his right arm for months; then again, "you know how it is *yourself*." For my own part, both arms have been covered with boils all winter, and are now, and without any appearance of release from them. I get somewhat less than 2000 stings every season, for, caring but little for them, I take little pains to avoid them. My friends all persist in saying that these numerous stings are the cause of the boils. I have got so accustomed to the boils also, that I regard them about as much as stings. It may be, or it may not be, that stings are the leading cause or, at least, a provocative of such complaints, and, at the same time, it may be worth while to find out.

Whether they are the cause or not, for my part, "I shall fight it out on that line, if it takes all summer."

I put 19 stocks in winter trim, but, having moved them October 1st, losing about ⅓ of them, they look now quite scaly. I see some honey in sections and "prize cases." I am perfectly astonished that bee keepers, who take so much pride in getting honey in nice shape for market, are so very tasteless in the section itself. Their sections look as if gotten out with a broad ax. **WM. H. KIRK.**

Waterbury, Conn., Feb. 20th, 1878.

The matter you have mentioned, has been several times suggested, but I am quite confident that it is all a mistake, to suppose the stings have anything to do with the troubles mentioned. Bee keepers have boils, paralysis, aches and pains, and sometimes have to submit to amputation; but do you think they have more such troubles than the rest of humanity? Our best physicians say the stings have the same effect as blistering by the agency of Spanish flies; acute, but inflicting no permanent injury. Some mineral poisons leave in the system a foreign matter that may become the cause of very stubborn maladies, but I think nature has wisely arranged it, so that this shall not be the case with stings and the bites of insects. They sometimes produce death by acute inflamation, but I think leave no lasting poison in the system.

HOW DID SHE GET THERE?

About two weeks ago, I examined all of my bees, and found the Italian queens all right, also the blacks. In about a week, robbing commenced in good earnest, and we have had more than enough of it. They commenced on one of my swarms of blacks, and got into the hive before I was aware of it. I could do nothing but watch and wait for night. About three o'clock, however, in the afternoon, they dragged the queen out, dead, when I went for them in dead earnest. I drove out all that I could, into another stronger swarm, and when I had taken the racks all out, in one corner of the hive, in a bunch of bees about the size of an orange, I discovered one of those nice Italian queens you sent me, last summer. Now, the question is, how came she there. The robbers came from a neighbor's, 20 rods off. His hive, with a nice swarm of young Italians, was 30 feet away, with brood all the way from eggs to hatching. I escorted his queen home and all was well. Now, I wish to know if your Italian ladies are in the habit of taking up their bed and board in some other ladies' home. She looked rather sheepish and very yellow to be caught away from home.

WM. L. KING, Sodus, Mich., April 6th, 1878.

I can only surmise that she swarmed out, and the bees clustered on the robbing hive, and followed in with the general melee; as soon as the bees lost sight of her, they mostly went back to their own hive, and she staid in the knot in the corner, until you found and released her. The case illustrates the general demoralization that ensues when robbing gets once started in an apiary.

CONVENTIONS.

Mr. ——— says, the proceedings of the National Convention ought to be sown broadcast, especially among small bee keepers, who have but little honey; for they throw their honey on the market for just what they can get, and, in that way, spoil the market for large producers. I think the market which a small bee keeper can spoil, is a poor one for a large bee-keeper. I wonder if these large bee-keepers were not small bee-keepers, at one time. I think that I got just as much per lb. for my small lot of honey, as some of the large producers did for theirs; and perhaps more than some did. The man who wants to buy honey does not look at the bee-keeper, but at the honey; and, if the honey is good, it will bring a good price; it does not matter where it comes from. I, for my part, set my price from 20 to 25 cents per lb., and if they do not want to pay that, I keep it until they do pay it. Had I kept my honey at home, I would have got 25 cts. per lb. instead of 20 cts. I hope you are not afraid of small bee-keepers.

JOHN BOERSTLER.

Gilead, Calhoun Co., Ills.

I assure you, my friend, I am not afraid of small bee keepers, neither am I afraid that the conventions will do any serious harm, even if they do waste a great deal of valuable time in talking. I confess it does seem a little funny, to hear of their reports, decisions and resolutions, in regard to the fdn., when the bee keepers of almost the whole world are using it successfully year after year. After every body has forgotten that the matter was ever discussed at all, they will probably swing round laboriously, and resolve that it is a success. Now I think of it, I am wasting *my* time, forgetting that the tons that are now being manufactured and sold, speak louder and plainer, than all the fine addresses or printed effusions could possibly do.

THE NEW FEEDER.

When I noticed the feeder represented in the last No. of GLEANINGS, I supposed that I could lay my hand upon a similar one that I have used several years. All the difference is that mine is square instead of round. The step on which the bees stand to feed, is just wide enough, and deep enough, to fill the entrance of the hive, so as to exclude robbers, and to shut the bees in the hive, if desired. I think the square form is most convenient, as it is just as easily made as the round one, and occupies less room. Who the inventor is, I can not say. It was introduced into Michigan in connection with Gilmore's patent bee house and hives, and I am confident that the same arrangement was also introduced into your state. I have not used it for some time past, and the children have mislaid it.

Now I shall not hesitate to use it, whenever I need it, even if the unnamed gent should secure a patent, or have it take on his name. Your offer of $10. is very liberal, but I am quite sure you can manufacture, sell and use the thing, and keep the $10. in your own pocket. **L. W. BODWELL.**

Ann Arbor, Mich., April 4th, 1878.

I quite agree with you, my friend, and I knew the style of feeder was not new; but the one shown was particularly easy to make, and I wished to reward our friend for calling my attention to it. The idea is not patentable, and any one can make and use either form, as much as they choose.

WARNING TO BEGINNERS ABOUT EXCHANGING HIVES IN THE SAME YARD.

I saw it stated, that, if bees were moved to a new stand during very cold weather, they would not get confused, lost, &c. So during a pretty heavy snow for this climate, in Jan. last, I exchanged places with 4 of my hives, trying to get them in passable order and arrangement: for Novice is always crying out for good looks in the apiary. I had different sizes and shapes of hives, and wanted to get all of a sort in a row. It turned warm in a few days, and the bees killed one another considerably, in spite of me; and when I came to examine them, three or four queens, which were there a short time before, were missing. The exchanging of hives did it, and I have learned one lesson. My best queen, Italian, was lost.

Again, I had 2 hives, 6 feet apart from north to south, and moved them westward 2 feet each day, for several days. I noticed that a few Italian bees from one of the colonies moved, got into a hive of blacks, and they still are with them. The black queen was laying properly before the moving, but, when examined 3 or 4 days afterward, she was not there, as 20 queen cells and the absence of eggs proved. The strong Italians had killed her.

I have adopted the Langstroth frame, and Simplicity hive, &c., and think I will hold on to it. I have tried 3 or 4 other kinds. **N. C. STEELE.**

Kossuth, Miss., March 15th 1878.

I have never advised exchanging stocks in the way you described, even to strengthen up the weak, for the very reason you have mentioned; it will often result in the death of the queens. Your hives being all sorts of sizes and colors, really made matters worse. Sometimes, they can be moved about, without any apparent damage resulting; but the reverse is so often the case, I would recommend moving bees about, in the apiary, as little as possible.

SMOKERS.

That smoker of yours is, in my opinion, a first-rate article, Prof. Cook to the contrary, notwithstanding; and I think I would like it better, as it is, than with a longer tube side to the bellows. I don't suppose that many would think yours an imitation of Bingham's, as soon as that his was an imitation of Quinby's. As for the patents, they will, doubtless, soon want a patent on our eating. I don't know but it is all right for a man to get a patent on a new article, but patenting old principles turned over, I don't think is "the thing." V. W. KEENEY.

Shirland, Ill., April 2d, 1878.

But you see, my friend, there are a great many of us, and we have a great many different notions. I presume smokers will be much like hives and frames; different kinds will be needed to please everybody. The following came in the same mail with your letter.

The smoker came to hand. I have no personal interest in smokers, but must say that I much prefer the Bingham to others. Success to GLEANINGS. F. A. SNELL.

Milledgeville, Ill., April 4th, 1878.

We have two barrels of the Bingham smokers right close at hand, a "big box" of Quinby's, and the girls and boys are making our own by the hundreds, so, you see, we can give you just what you prefer. I wish to sell you just which will please you most; but I make the most money in selling the Bingham and Quinby; so, you see, I can afford to be impartial.

The smoker came all right, and I am much pleased with it. I can not speak of comparative merits, as it is the only one I ever saw.

My bee bonnet is a shaker with wire cloth sewed in front, and a deep cape all around; I can put on a sacque, if they are cross, and tuck the cape in, and feel very safe; they seldom sting my hands. I think such a bonnet would be nice for beginners. I hope friend Joiner was as good natured when his bees swarmed as in telling it. HANNAH W. WILLIAMS.

Springville, Iowa, April 5th, 1878.

Now, I suppose that shaker is real nice and comfortable, but, friend Hannah, you would not wish to see "us men folks" poking around our beeyards with shakers on, would you? There is a strawberry patch close by our apiary, and—well, I always find all sorts of veils "awfully" in the way, for some of the strawberry vines have wandered up quite close to the hives.

TEMPERATURE IN HIVES, IN WINTER.

This winter, when the thermometer stood 8° below zero, in the air, near my hives, I placed the thermometer just over the cluster of bees in the hive, and under the oat chaff that was in the top of the hive, and let it stay there half an hour. On looking at it again, I found it stood at 54° *above zero*, showing a difference of 62° that the bees were keeping up, and the chaff was keeping right with them. Last April, when the thermometer stood at 48° in the air, I slipped it between the *outside of the hive* and the straw that was packed around it, and it soon rose to *over* 60°. Doesn't that speak well for chaff and protection of hives? W. S. BOYD.

Hamilton, Ohio, April 3d, 1878.

I received the samples I sent to you for, and like them well. Now I would like one of those frames that you "could not walk out around the stairway, but woke up in the night and planned." By the way, friend Root, I would like to ask if that is the way you usually sleep; walking around the stairway. I think I will tell you a little about my bees, as I wish to enter the ranks, as a *bee-keeper*. I began about two years ago with two swarms; have since bought some. I keep an account of all my expenses and income. My expenses so far, including yard, hives, and all, are two hundred dollars; my income is one hundred and fifty: but we have, for the fifty dollars lacking in income thirty six colonies, nicely packed in chaff, as directed in GLEANINGS. If last summer had been as good a season as the previous one, I should have had my bees all clear of expense before this time; but it was a poor season. In this section, many late swarms are already dead.

I can hardly tell you how invaluable GLEANINGS is to me. One of my friends talked of buying some bees, and I thought I would give him one of my numbers; but, when I looked them over, I could not spare *one*, although I have read them over many times. A. W. ANDERSON.

Cambridgeboro, Pa., Jan. 10th, 1878.

I am wintering 172 good swarms, so you see that, if I double them down to about 125 in the spring, I will have busy times.

I think my method of disposing of natural swarms so as to prevent any increase, is about as effectual as any. Suppose No. 1 swarms first; if No. 2 swarms within ten days thereafter, I destroy the queen cell in No. 1, and hive No. 2 in No. 1; and so on throughout the season. This method will satisfy a great many swarms for awhile, and a great many it will not. This, Mr. Editor, is what we call running them on "high pressure"; but don't forget that we get box honey. HIRAM ROOP.

Carson City, Mich., Feb. 5th, 1878.

Never since we have kept bees have we ever before seen them in such condition thus early. Most of the hives are crowded with young bees, and, early in the morning, you can see the steam puffing out at the fly hole. All are yet in their chaff boxes, and we shall keep them there until the latter end of April, unless they should swarm before that time. We commenced the winter with 102 stocks. Two were found queenless March 1st. All the rest are No. 1 stocks. I do not mean all are equally strong, yet we have no weak ones. Natural pollen was gathered March 10th in great abundance.

We have no fears of spring dwindling after this time. All of our stocks had an average of 40 lbs. of stores last fall, and we have not had the blues all winter for fear some might get out of honey and starve to death. Neither do we have any that cluster away on the opposite side of their stores, and then give up the ghost; and we do not believe in filling the center of the hives with empty combs to cluster in, but put plenty of honey in the center combs, and then no trouble will be found about starving. J. BUTLER.

P. S.—It looks to me as though bee-keepers had better let that grape sugar stuff alone, and not be feeding their bees with it; for extracted honey has already passed through quite an ordeal to establish itself, and just at this time, when it is gaining favor, this humbug ought not to be introduced. J. B.

Jackson, Mich., March 19th, 1878.

If you will make some experiments with the grape sugar, friend B., I think you will agree with me, that there is but little danger of its getting into the extracted honey. The bees will not touch it when honey is in the fields, and, in its candied state, it can not be thrown out with the extractors.

And now, I want to tell you about the bees, and see if you don't think I ought to be happy. I have wintered 84 colonies on their summer stands without loss, and do not think more have died, in the whole 84, than enough to make one ordinary swarm. My hives are nearly all 2 story L. hives. Last fall, I put on the honey boards, removed the blocks from the two middle holes in the board, and laying a wisp of hay over the holes, filled the second story about half full of buckwheat chaff. This is all the protection they had, but I do not attribute my success so much to my own skill and management, as to the large colonies of bees, abundance of good sealed stores and the remarkable mildness of the weather. I think my bees are fully as strong now as they were last fall. All strong stocks had brood in all stages and hatching the middle of Feb., and the weakest had brood hatching the 6th, of March.

The bees began gathering pollen on the last day of Feb. and have been bringing it in at a lively rate every fair day since. I shall want something less than "10 acres" of comb fdn. soon. Let Messrs. King & Co. say what they please about it, I know I had the nicest comb honey last year that I ever saw; it was built on comb fdn. too, and had no "fish bones" in it either. ALFRED MCMAINS.

Chariton, Iowa, March, 19th, 1878.

CROOKED COMBS.

What would you do with a hive of bees which had built its combs so "awful" crooked and irregular that *none* would do for "decent" frames, if transferred? L. S. J.

New Philadelphia, O., March, 13th, 1878.

The day for discussion of crooked combs has passed, for very much the cheapest and easiest way to do now, is to melt them up, and have new ones built on fdn.

WILD BEES IN THE SOUTH.

I can get as many swarms caught in frame hives by the negroes, for 50c. and 75c. as I care to have. There is no end to the swarms flying around in the spring, as the swamps are full of bee trees.

H. B. SHAW, Lake St. John, La., March. 27th, '78.

CORN CRIB HOUSE APIARY, &C.

Our bees have wintered nicely, and were bringing in pollen on the 8th, inst. The chaff hives are nice. I have made some with L. frames. Bees in all kinds of hives have wintered well. I don't like the corn house apiary, and will take them out this spring.

Wintering in chaff is a success; this I knew before the bee Journals published it, but I like cellar wintering as well; also for springing, there is little difference. J. L. DAVIS.

Holt, P. O., Mich., March, 28th, 1878.

QUEENS REARED OUT OF SEASON.

On the 11th, of March I found an Italian colony of bees, queenless. I gave them a sash of comb in which were eggs and larvæ, from another Italian colony. On March 18th, a neighbor gave me a black queen which I introduced to the queenless colony to which I had given the eggs and larvæ. And what do you think? To-day, March 27th, I found a dead virgin Italian queen in front of the hive, which the black queen had killed. Now what I want to know is, can bees rear queens any season of the year? If so, can you keep them until drones are out?

A. F. CONAWAY.

Mannington, West Va., March, 27th, 1878.

Queens can be reared at any season, but if they cannot fly out before they are a month old, they will, as a rule, be only worthless drone layers. Your experience was exactly what might have been expected.

I have to apologize to you for accusing you of neglect in sending the saws. The saws were sent, but overlooked by my workmen. And found only yesterday among the rubbish in the shop.

A. X. ILLINSKI.

East St. Louis, Ills., March, 29th, 1878.

I give the above a place because there have been several like complaints. One man said we had sent no rabbets with his hives. I ordered the shipping clerk to send them, with an apology, and to pay all expenses. He was so certain that he had put all in, that we wrote again, and received answer that he had found them after all; they were taken out, laid aside and forgotten. Be very careful that *you* are not the careless one, and then state the case gently, for remember it is but human to err.

REPORT FROM A LADY.

I began last spring with 15 swarms in improved box hives, frames below for brood and 4 drawers above. The merits of the S. hive having been noted we made 2 dozen with metal cornered frames, which were used for the new swarms on the two story plan. The result at the end of the year shows, comb honey in frames and boxes 900 lbs.; cash proceeds from sales $81, 50.; No. of healthy stocks on hand at this date 32, with abundance of honey.

We now think section boxes are just what we want, and are ready any time to take stock in a universal S. box. Nice comb honey in small packages that can be shipped ,kept and handled, is the shape to have it in, to make it profitable; at least, such is, at present, my conclusion. MRS. EBERMAN.

Merrimac Point, Ills., March, 14th, 1878.

HOME MADE HIVES, FRAMES, SECTIONS, &C.

I received your samples of small sections, comb fdn. &c. Being almost entirely without machinery, I set my mind to work out sections, brood frames, hives, &c. as best I could, and to do so had to deviate somewhat from your original ideas. I am now fully prepared to transfer my bees from Harbison, to Simplicity hives, using the L. frame.

Having but one saw, I cut the grooves in the top bars of brood frames with it, being 3-16 deep x⅛ wide; this lets the fdn. in quite loose. I then fasten it by pressing thin strips of wood in the space between the fdn. and side of the groove. This makes solid work. The small sections, I cut from bolts three feet long, sawing them 3-16 thick. Smoothing on both sides reduces them to a trifle above ⅛. I then cut them of the proper length in a mitre box, reversing the top pieces, and with a hand splitting saw, a stroke or two makes the groove for the fdn. I then nail them on a form, putting one ¾ nail in each lower corner and two in the upper corners; this presses the fdn. into place. In handling the 10, 000 I have now prepared, not one, as yet, has fallen out.

The Feb. No. of GLEANINGS has been of more value to me, than four times its price for one year. I consider your suggestions on sawing, and saws as perfectly invaluable, and will never feel satisfied until I have a foot power saw, and one of those Cigar Box planers, for making sections alone. Do you find it difficult to remove the first frame of sections in the upper story? Is it necessary to have separators between the side frames of sections and side of hive?

Our prospects for a honey season are good all over the State. GEO. C. DOHERTY.

Bakersfield, California, March 6th, 1878.

As bees very seldom attach comb to the side of the hive, separators are not really needed there. As the Simplicity hive is 14¼ inches wide, and the 7 broad frames but 14, we have ¼ inch to wedge up between the last frame and the side of the hive. As this last frame has the separators on the outside, no combs are ever built in the ¼ inch space.

COMBS WITH MOTH WEB ON THEM.

I have several gums with full sets of frames, all filled with old comb that contained bees, in the fall, which died out during winter months. Some of these combs are literally filled with moth; in fact, some few are a solid mat of web. Would you advise me to use one or two of the worst ones in each hive of new swarms that I am looking for in a few days? Will they clean the web out of them and build to the old foundation that is left in them? M. M. CAMP.

Navasota, Texas, March, 18th, 1878.

I presume a good colony of Italians would pull the webs all out in time, but it is quite probable they would build a new comb quicker and easier. Cannot you afford to poke the webs out friend C? It is quite a task for the little chaps to lug and drag a web out at the entrance, even if they do sometimes do it. Since the advent of fdn., it is less of an object to save every bit of old comb. I would try some of the combs, and see how they work, but think I would first pick all the webs off.

Our Homes.

He that is slow to anger *is* better than the mighty; and he that ruleth his spirit than he that taketh a city.—Proverbs, 16; 32.

FRIEND ROOT:—Have read the chapter in Feb. GLEANINGS about yourself with much interest. 'Tis rather a new way to talk and criticize ones self, but seems to prove the Scripture "And their works do follow them." Could we realize that our works follow us and that there is no "Salvation from sin" except by "doing *works*" "meet for repentance," we could not afford to knowingly do wrong. If you are really in earnest in changing from evil to good, I would like to live near you that we might try friendly "mutual criticism" and try to help each other.

My besetting sin is a quick ungovernable temper which causes me much trouble. My first recollection of mechanical work, is of trying to build a "box trap" from bits of lumber. When nearly completed an unlucky nail made a bad split; in an instant the angry hammer made splinters of the trap. In a few moments I was at work again on another trap, this time boring a hole for each nail, to make a "sure thing." Playmates of my boyhood could tell how easily I used to "get mad." After long years of hard trying I can generally keep cool and civil towards human associates, but my favorite horse, pet cow and gentle sheep are all liable to come in for their share of abuse, if I chance to think they knowingly disobey. The bees are a perfect checkmate; when they won't "down" there comes a sort of feeling that they won't scare easy—that kicking the hive over won't pay—that sticks, stones, loud talk or even "cuss words" won't do any good; so I quietly use smoke or sweetened water; now what I want and need is not simply to prevent an outward show of anger, but the spirit and self control that prevents the first feeling of anger; can you help me?

Mt. Airy, N. C., March 14th, '78. J. H. B.

If my writing took hold of *you*, my friend, you can hardly imagine how your kind words have taken hold of me, and how my heart warms toward you, for the simple little confession you have made. May God help us both to come nearer to that Golden Mean where the first feeling of anger may be repressed in the outset. I do not know how it seems to you, but with myself, I feel that I have far, oh, so very far, to travel before I shall reach that point. At the very moment I am now writing, between 30 and 40 fellow beings are working for me, all about me, and I believe without exception, with willing hands; they are all willing, I am sure; for at different times in the past years, they have come to me one by one, asking me to give them something to do. They have helped me and I feel indebted to them; perhaps I have helped them, and they feel indebted to me. Some of them are skillful naturally, and some are not. Now this sounds rather hard, for I have faults as well as they, and well they know it, but I hardly think there is one in the whole lot, that would speak as unkindly of me, as I am at this very minute speaking of them.

I am often advised not to keep hands that do not prove trustworthy; but some way when I kneel in prayer at night the thought keeps coming up, "inasmuch as you have done it unto the least of one of these, you have done it unto me," and I resolve to be kind and patient. Pretty soon I discover some very valuable trait in the very one who has tried my patience so severely. Like the lesson of last month about the glass, I begin to think the fault more mine than theirs, after all, and I assure you it is a much pleasanter thought than to be all the time blaming somebody.

It was but yesterday that two of the younger hands, boys in their teens, annoyed me repeatedly by leaving their work and rambling over the premises, under one pretext or another, until I had fully resolved that I would cut down their wages, temporarily, as a punishment; but when I considered how keenly they would feel such a reproof, aside from the loss of the money, I felt that it would be at least a safe way, to talk to each one mildly, first. I waited until after dinner, when all were in a pleasant mood. In a quiet friendly way, I told them, each one by himself, that they had wasted their time, and that it was not fair, for me to pay them just as good wages as those who worked steadily all day long; and although it might seem to them a small matter, I felt obliged to speak about it, on account of the influence it might have upon others, as well as for their own good. Both of them replied to me in a frank manly way, and promised to do better. Do you know how much better I felt than if I had scolded the poor boys? And yet it would have been no more than right to have told them "what's what," as the world expresses it. When I have reproved a hand in that kind and friendly spirit, I believe I have never yet found one so bad as to refuse to comply with my requests; and yet over and over again, I have to fight the same battles, to resist the temptation to indulge in "righteous indignation." Is not righteous indignation sometimes proper? Perhaps it is, but I fear God never intended to entrust *me*, with any such weapon, for I always hurt myself whenever I undertake to handle it.

A few weeks ago a boy who, I knew, had been considered rather quarrelsome, applied to me for work. I was not very much acquainted with him, but from what I had heard, was rather prejudiced. Although I told him I was in need of no more hands, and rather evaded his request, he came to me the second time, and begged for something to do. He said he would go to meeting, but he had no clothes fit to wear, and that if there was anybody that really needed to be given something to do, he was the one. He said he would work for whatever wages I might give him. This is a trifling thing to relate, I know; want and suffering are common things in this world, and they are very apt to be trifling things, to those who have an abundance. I gave him work, and he took hold so eagerly, that I fairly pitied the boy; when I discovered that he was rather slow to understand, and often made mistakes, I pitied him the more, for well I remembered the time when I was scolded and laughed at for my slowness of perception, and my extreme awkwardness, when asked to do anything I was not familiar with. I was so slow in getting hold of the right thing, or getting hold of the right place, especially if it happened that there was not a minute to lose, that even my own father, half in jest, nicknamed me "snail driver," and when the rest took it up, and when all the boys of my own age seemed so much smarter and quicker than I was, in almost every thing, I really began to feel, from the bottom of my heart, that perhaps I really was not as—well, to come right down to the point, that perhaps I was not quite bright. None but one who has had the experience can understand how one feels, to be thumped on all sides for being a "dummy," when they are doing the very best they honestly can. I presume I was unusually sensitive, for I have seen other boys seem to mind nothing about things that would have mortified me almost to death. Now, to come back to my story, I believe I can say that I thank God for all those childhood griefs and sufferings, if it has had the effect of making me feel for others who have had similar trials, and who feel as I did then. This boy, during his first week, in his ambition to please, I presume, lifted a board too heavy for his strength, and the wind blew it against a large window. A look at his face showed he had been punished enough, and when he came and told me he would pay all the expense of fixing it as soon as Saturday night came, I—well, I would be very glad indeed, if everybody would do as much under similar circumstances. It finally became convenient for me to ask him to work in the wax room with the girls; for a few days all went well. Then I heard that he had been swearing so badly in the presence of the girls, that they could not stand it. I was indignant, and came very near getting somebody to take his place, without even giving him a hearing. I, however, as usual, thought over the matter before saying anything, and then spoke to him mildly, of his conduct. Somewhat to my surprise, he attempted no excuse.

"Mr. Root," said he, "you do not know how badly I have felt about that. I can not blame you for discharging me, and I expected you would, but I have got an awful temper, and I got very angry. If you would only try me *once more*, I would not say a word."

"I will try you."

"Now, may I ask one favor?"

"Yes."

"Can you not give me something to do about the machinery where you are around oftener?"

I granted his request, and he is now at work with the saws, even if it is late in the evening, and I have never had any fault to find since. I pass him often, and sometimes speak a word of encouragement, but I fear I oftener speak sharply to him, when he does not hold his stuff up to the gauges so as to cut it accurately. It was but a couple of hours ago, that some of the hands were putting up some heavy plank. While one of his comrades was lifting with all his might, and in a position where it was really dangerous, our friend stood calmly looking on, as if it was nothing to him whether the plank slipped and fell on the man or not. He must move instantly, to be of any assistance, and I could think of but one way of making him move; it was to speak loud and sharply to him. I did this, and he took hold just in the nick of time. Why will some people stand idly looking on, when not only property, but life even, is at stake? Perhaps it is just the way I used to do, when I got so many raps for not moving quicker. There seems to be a sort of inertia about humanity; it takes a certain amount of time to get intelligence to the brain, and then, with some, it seems to take a great while, to get their bones and muscles under way. Although naturally one of the slowest of mortals, I have acquired considerable of a reputation as a rapid worker in some kinds of work, but it has all come by making the matter a study. A sharp tone will sometimes make a body move, when nothing else will, but after all, is it well?

I remember being in a shop a few years ago where several hands were employed, and the foreman was constantly stirring the boys up with loud oaths. I looked to see if their feelings were not hurt by such language, but to my surprise they seemed to take it as a matter of common occurrence, and some of them even replied in the same strain. I am inclined to think not only that "he that ruleth his spirit is greater than he that taketh a city," but that such an one is capable of ruling those about him, should they desire him so to do. I once thought it was a great thing to be able to take charge of a hundred or a thousand hives of bees, but to take charge of the same number of human beings, and to encourage in each one a spirit of ruling himself, I feel would be a far grander work.

And now, my friend, comes the work in hand, for you, and for me. I have no doubt at all, but that, if we are faithful in these few things, God will make us both rulers over greater things here on this earth than we have ever dreamed of; but alas for the stubbornness of the human heart. You spoke of being angry; you acknowledged the fact, that you had a bad temper to contend with. I feel from just this, that you have gained a victory, for the greatest sinners never acknowledge that they are sinners at all. When one becomes conscious that he is the victim of an evil temper, he has commenced to reform. Still farther; it is often the case, when one is very angry, that like the inebriate, he stoutly insists he is not angry at all. I am very apt to insist that I have not been angry, and I will sometimes think so for a day or two, but the time comes, when I, in a softened mood, look back, and feel sorrow, for what I have done or said. If you can say while angry, "I am angry now, and am unfit to talk," and can stop there, and utter not another word, you are very near conqueror. Even if your face be flushed, and the breath coming with difficulty, if you can smile through it all, and reply quietly and gently, you are saying in actions, if not in words, "get thee behind me, Satan." sit down and cry, if you wish, it may do you good, but resolve, no matter what transpires, that you *will* think gently and kindly, of every thing, and everybody; that you will not blame and censure, for it is the way things have been since the world began, and will be, in all probability, until the end of time; and that you have no more to contend with than people in general.

"Forgive them, Father, they know not what they do." What gentleness, what kindness to the erring world, is expressed in these few simple words. Keep constantly this feeling in your heart, and you will be very near keeping out the least feeling of anger. Make up your mind, when you get up in the morning, that trials are going to come; that you will not only be disobeyed where you have a right to obedience, but that you may be robbed of your money, falsely accused, treated patronizingly, and be tried in other unexpected ways. Make up your mind, too, that you are, with God's help, going to rule yourself, and, in so doing, show Him that you are capable of being entrusted with the ruling of all those about you that need careful and loving guidance.

In last year's GLEANINGS, I told you, my friends, something of a young man that was converted from our Bible class in the jail. I told you about his going with me to the mission schools. Well, one Sabbath afternoon, as we were riding along on our way to one of these schools, he spoke to me of his having no home, no money, and almost no friends in the world. I quoted to him my favorite text, "He that is faithful in a few things shall be made ruler over many." I pointed to a pretty residence by the roadside and said;

"F., if you are faithful in the work God has given you, he will give you a home as nice as that; an orchard, a house, broad acres, every thing you need; and all will come pleasantly, and easily, if you will only be faithful."

Not one year has passed since then, and yet God has given him all these. One of the teachers in the mission schools has lately become his wife, and for a few weeks he has been at work on his father-in-law's farm. But a few days ago, he asked for his old place at setting the type for GLEANINGS, and, I am sure, we were all glad to welcome him back among us. He now takes charge of the farm, and sets type too. Do you see how God gives us more to do, as fast as we are "faithful?" The F. of one year ago has ceased to exist, for he has, most truly, been "born again." Do you not think it possible, that that mother who prayed for her orphan boy, as she breathed her last breath years ago, now looks down from heaven smilingly on him, as she witnesses his struggles, while he "battles for the right"? Can you not also think how fervently I thank God for having put it into my heart to go to those boys in jail, and try to tell them, in my simple way, that "he that ruleth his spirit is greater than he that taketh a city?"

Nearly two weeks have passed since the above was written, and, as I look back, I can see again that I have been very far from practicing what I preach. Only day before yesterday, a friend came, who said he wanted to purchase some bee fixtures, but that, if he did, I must stop and wait on him myself. He said he wanted to have a talk with *me*, and he did not want to be waited on by the clerks. It was Saturday afternoon, quite a number of new hands had just been set to work, and the whole establishment needed all the supervision my poor brains could give it. One hand was grooving for the fdn., and his groove was not in the centre of the top bar, and not near deep enough. Another had lost his gauge, and was cutting up stuff without it. The dovetailing saws, for some unaccountable reason, were making the dovetails in the sections so loose that the pieces would almost fall apart, and no one could account for the sudden freak. The printers were calling for copy, clerks waiting for me to examine the day's mail which lay in the proper heaps all around my type writer, and, more than all else, the bell was ringing for our Saturday afternoon prayer meeting. I was standing still, for I was devising how I could best bring order out of all this chaos. Our friend very naturally supposed, if I had nothing to do, I could just as well attend to him as not, and so commenced to ask the price of fdn.; a civil question, was it not? but, unfortunately, when I am worried, if there is anything I cannot tell, it is the price of fdn. I told him, as well as I could, how much I had to attend to, and that the boys would tell him all about it. I knew I was just where I especially needed the quiet and strengthening influence of the prayer meeting. I believe my friend does not approve of these home papers, and, if I went to *meeting* instead of waiting on him, what would he think? I could not explain to him that I felt it would perhaps be better to lose a great many dolars than to miss the meeting, so, in a sort of cowardly way, I fear, I fixed things as well as I could, and then reached the meeting just 10 minutes before it closed. I took no part, and, I fear, studied on saws more than I did on the danger I was in from so much care and worry, and, more than all, from having so much money as has been entrusted to me by you all, of late. It is true I do not get proud of my clothes, nor good looks, but I fear I do get proud of my money and business, and it was in this frame of mind that I went back to business. Copy was out again, and I had just commenced work on the type writer, when this friend came up.

"Mr. Root, I want to buy some goods, and I have got the money right in my pocket to pay for them, if you will wait on me; if you cannot, I guess I shall have to go without them."

Like Christian in the Pilgrims Progress, I had lost my sword, and my armor had been forgotten. After all I had said in these papers about kindness and gentleness, and of being ready and on hand for temptations, I listened to another voice that kept telling me it was my duty to let him know that money was no particular object with me, and that a man with nearly 40 hands in his employ could not be expected to stop his work for everybody. I did not know that I was doing something I should be so sorry for, and I did not realize how wrong I was when I replied,

"Mr. ———, if you can not trade with those who are ready to wait upon you, you will have to keep your money, for I have not a minute to spare," and I went on writing vehemently, to show how busy I was.

I very soon felt this was too rough, and so tried to explain matters a little, but my face was flushed, and it was quite out of the question for me to look pleasant. Then, I knew I was angry; the plain way was to acknowledge, and ask his forgiveness, but I was too proud to do that, for I kept telling myself that he should not have kept insisting that I should stop. He made a part of his purchases and went away, but the "hurt" look on his face as I spoke to him so unkindly, has haunted me ever since, and over and over again have I thought how much I would give, to have it recalled. It never can be recalled entirely, for there is something about these unkind words that, it seems to me, can not be entirely obliterated.

It seems very hard to refuse to talk to a man who wants to talk, or to refuse to write a postal, when you are politely requested to do so, and I hardly know what I ought to do, under all such circumstances, but I do know that all customers should be treated pleasantly, and courteously, no matter what the circumstances may be. You have all been kinder and pleasanter to me than I deserve, and may God help me, to fill my little sphere of usefulness, in a better way than I have done. Truly, "he that ruleth himself, is greater than he that taketh a city."

QUEER "DOINGS" OF QUEENS.

I HAVE a somewhat different report to make from what I gave you last year. After losing my bees last spring by moving them on the cars, I purchased two colonies of hybrids in box hives, for $12., and transferred them to the L. Hive; increased to 9, partly by artificial and partly by natural swarming; and wintered on summer stands packed in chaff. I put one swarm in a "chaff hive" ordered of you last fall. There was this noticeable fact: the bees flew less in the winter, and consequently consumed less stores than those with chaff only on either side and top; but I can't discover that they are any stronger. The last of Feb. they were bringing in pollen at a great rate; we consider ourselves about 4 or 6 weeks ahead of last year. We don't look for brood, usually, until about the first of April; but this year they have raised brood *al'most* all winter.

Now I have something strange (at least it is so to me) to tell. I went to "town meeting," which, I suppose you know, comes on the first Monday in April, and on my return found there had been something unusual going on; robbers had been at work, but were quiet then. Next morning, I found that No. 1 had been trying titles with No. 2. I closed the entrance nearly up and went to the woods to work. On coming up at noon I found they had been at work again. There was a string of bees from No. 2 to No. 1. I found the queen in a "ball" of bees beside No. 1; I got my cage, but before I had time to secure her, she flew out of my hand and started on a tour. Well, I told the folks she would soon be back, a statement which one of our neighbors doubted. In about two minutes she came and lit on the kitchen floor, but before I got near her she again took wing. She finally lit on the house, clear up on the cornice. I clambered up, and this time made sure of her ladyship. Then I made an examination and found, that No. 1 had a dead queen, which had been dead at least 3 or 4 days, as no eggs had been laid within that time; and that No. 2 had eggs that were just laid, so the queen belonged to No. 2. Well, I gave her to No. 1, which received her gladly. Did No. 1 rob No. 2 for their queen? they certainly robbed them and took their queen captive.

I expect to Italianize my bees this summer from neighbor Roop's apiary, so I hope you will send him a good queen. I think that friend Roop has as nice a hive to raise queens in as I ever saw; as he is going to send you one so he tells me, I'll not undertake to describe it. He don't want any patent on it either. J. J. McWhorter.

P[illegible], April [illegible]th, 187[illegible].

The bees from a queenless colony frequently swarm out and unite with one that has a queen, if they are permitted to do so, but I do not know that I ever heard of a queenless colony trying to rob one that had a queen. I do not know how the queen that belonged in No. 2 came to be near the queenless hive; it *does* look as if the latter had robbed the former, and the former, bees and all, had moved over. When a hive is robbed, the queen usually deserts the hive about the time her colony has ceased to resist, and she will often be found somewhere on the outside amid a ball of her own bees and the robbers; is it not possible that the queen only ceased laying in No. 1, and that the queen you found really belonged in the hive she was near, after all?

RUBBER LINED DIVISION BOARDS.

I HAVE made some of the chaff division boards and sided up with ⅛ inch grape box material, and like them very much better than the quilted ones.

One great trouble has been the variable size of hives even from the same factory. A variation of ⅛ inch in planing lumber makes a variation of ¼ inch in the length of a hive, and 1-16, half as much. Your suggestion of a brass gauge for planing lumber is a good one. A slight variation makes it impossible to use the wooden division board where air tight joints are desired, as in winter packing by the contraction of the brood chamber. I have contrived a remedy, and believe it will be valuable to the whole fraternity. It is to cut the division board of ½ or ⅝ inch material, and ⅜ inch short, and then slot the end, in the middle, with a saw, and slip in a strip of rubber packing 1 inch wide; or a wider strip may be set in two slots made near the edges. Thus used, 3-16 inch packing is stiff enough to form a tight joint, and will press the other end close to the wall. I think for most purposes the sawed end will be tight enough. If not, a face of elastic cloth or another rubber edge can be added. They are lighter, more easily stowed when not wanted, and cost much less than chaff boards, and are far less liable to injury. I have tried the single and bent rubber, and prefer the single thus far, as being just as good and easier made. J. W. Porter.

Charlottesville, Va., Feb. 11th, 1878.

If your division boards are made of ⅛ inch wood, they will warp badly; we had in our apiary over a hundred such and they were all discarded on this account. The chaff cushion division board was made thick to prevent this, and also to secure warmth. In cold weather the bees cluster close out to the thin wood sides, and I found a fine patch of brood, one day in March, right next to this wood. It is so thin that the animal heat of the bees warms it through, and the chaff prevents any frost from ever reaching it. One of our best colonies was wintered in a simplicity hive, on 4 frames of comb in the centre of the hive, with nothing but a chaff division board on each side and a chaff cushion in the upper story. Division boards made of a single thin board, or even two thin boards with an air space, do not give anything like as good results. If I am correct, both rubber and cloth are mentioned for this purpose, in the earlier volumes of the *A. B. J.*

Our bees have all wintered nicely, none having been lost except the two that were allowed to starve, since I have given up trying to look after every thing myself, and set one of the boys at the task, they have done finely. The house apiary is far ahead of the bees out side, and I am now satisfied that it is an excellent place in which to raise bees, *any way*.

FOUNDATION CUTTERS.

See engraving in March number. Price 10c. Two cents extra when sent by mail.

A. I. ROOT, Medina, Ohio.

EARLY

ITALIAN QUEENS

FOR 1878.

The increasing demand for our choice Queens has induced us to breed them the present season at the following prices:

Pure Tested Queens in April, May and June, each	$3 00
July, August and September	2 00
Nucleus Hives with pure Tested Queen	5 00
Full Swarm " " "	10 00

A discount will be made on large orders.

Safe arrival guaranteed.

No circulars sent.

☞ Our book, "THE APIARY," describing the nature and habits of the Bee, sent post-paid for Fifty Cents.

4-6inq A. F. MOON, Rome, Ga.

Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 25
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	9 00
" " per sheet	10

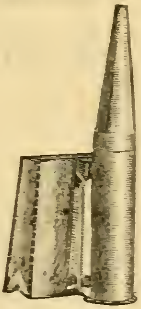
We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

SMOKE

AND

SMOKERS.



I am overwhelmed with letters asking "which size smoker is the best?"

Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries* and for *coarse fuel* they are the *best*.

The Standard is what its name implies and constitutes the *bulk* of *sales* so far.

The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants, it is larger, however, than the improved Quinby.

The first "Direct Draft" smoker *ever sold* has been used one year and sold for one dollar as the gentleman wanted a *large* size.

It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price*."

They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco* or *sulphur*.

Directions sent with every smoker.

These smokers are a *necessity in modern bee culture*, and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per Express	$1 75	Mail	$2 00
Standard	"	1 50	"	1 60
Small,	"	1 00	"	1 25

Patented January, 1878. Manufactured *only* by the inventor,

T. F. BINGHAM.

4tf Abronia, Allegan Co., Mich.

Electrotypes.

We will furnish electrotypes of any of the engravings that have appeared in GLEANINGS, for 25c per square inch.

A. I. ROOT, Medina, Ohio.

Try Me!

Italian Queens, Nucleus and full Colonies, Hives, White Holland Turkeys, and Plymouth Rock eggs. Satisfaction guaranteed, or money refunded. Send for prices.

WILSON HARVEY,

4-6 Brownsburg, Bucks Co., Pa.

SOLDERING IMPLEMENTS.

For $1.00, I will send by mail, a full sized soldering iron ready for use, with a box of rosin, box of soldering fluid, bar of solder, and full printed instructions for use. If sent by express, I will add a soldering board, all rigged, ready for work.

A. I. ROOT, Medina, Ohio.

PRICES REDUCED ! !

In Canada you can get anything in the way of Apiarian Supplies. Section Boxes grooved for fdn., *from 5x5x1⅞ down, at 75 cents per 100 in the flat by the quantity.* Wide Frames for sections, in the flat, $2.00 per 100. Hives, 2 stories complete, $2.50 to $3.00, according to what frames wanted. Extractors, $5.00 each, all metal, will take any frame from 18 in. down.

Address M. RICHARDSON,

4-5 Port Colborne, Ontario, Canada.

1878. FOR SALE! 1878.

Italian Queens.

Propagated in populous colonies, pure and prolific. Tested queen, $2.00. The same grade of queen so soon as fertilized and laying, $1.00. Also full and nucleus colonies. Orders filled promptly, and safe arrival guaranteed.

Address W. P. HENDERSON,

4-9inq Murfreesboro, Tenn.

Comb Foundation MachineS

$35.00 TO $100.00.

SAMPLES OF FOUNDATION WITH OUR ONE POUND SECTION BOX BY MAIL FOR FIVE CENTS.

For illustration and complete description of how to use the machines see our Illustrated Catalogue of Apiarian implements and supplies, mailed on application.

A. I. ROOT, Medina, Ohio.

Queens Wanted,

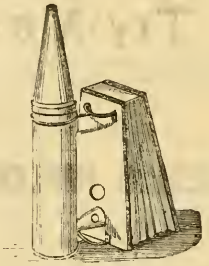
And Queens For Sale.

I will pay $1.00 for all the Italian queens any of our Southern friends may find it convenient to send me during the month of May. These same queens, I shall sell for $1.50; you are to guarantee safe delivery, and I shall do the same, but nothing farther. I have made this arrangement to answer the great number of questions in regard to buying and selling early queens. In June, I will pay 90c, and sell for $1.25; after July 1st, 75c, and sell for $1.00.

Tested Queens double above prices. All are to be daughters of imported mothers. I will pay 25c for hybrids, and sell them for 50c, if I can. If you send queens, write on the cage whom they are from. All to be sent by mail. I will pay 15c for black queens, and sell them for 25c, if I can. All the above are to be *fertile laying* queens. Virgin queens are of *no* value.

A. I. ROOT, Medina, Ohio.

New Quinby Smokers!



THE ORIGINAL QUINBY SMOKER has been recently Greatly Improved, and is now equal to any in the market, in *all* respects.

I am prepared to offer them at Reduced Prices.

For Circular of

General Bee Keeping Supplies,

ADDRESS,

L. C. ROOT,

5-4 **Mohawk, Herk. Co., N. Y.**

POPLAR SECTIONS CHEAP.

Dovetailed Sections any size from 4¼x4¼ to 5x6, 2 in. wide........	....per 1000	$8 00
Sections ready to nail (same size).....	" 1000	6 50

Comb Foundation, 45 to 55 cents per lb. Sample Sections, by mail 5 cents. Dollar Queens after June 1st. Liberal discount on large orders.

For special prices, Address

REINHARD STEHLE,

5d Lock Box 193. Marietta, Washington Co., Ohio.

Price of Dovetail Section Boxes.

(4¼x4¼, 5⅔x4¼ or 6x6 inches.)

In lots of 500 Boxed..............................	$3.25
" " 1000 "	6.00

Will furnish any size Section Box, within 6x6 inches, also Strawberry Boxes. WILLIS D. PARKER,

P. O. Box 333, Defiance, Ohio.

CANADA.

Send for the new 2 story Simplicity Hive, complete, only $2. Sections planed. 4¼x4¼, one hundred. 75c. Bee-Feeders by mail 10c. Send for Samples. Circular free to all. J. B. LAMONTAGUE & CO.,

Box 635, Quebec, Canada.

FOUNDATION COMB.

I am prepared to supply a limited quantity of worker comb foundation, cut any size, at 55c per lb., or will work all wax sent me, for 25c per lb. or half the wax. 5 F. J. FARR, Independence, Mo.

ONE HUNDRED COLONIES PURE ITALIAN BEES, FOR SALE CHEAP.

Queens all bred from Imported mother.

QUEENS AND HONEY IN SEASON.

Send for circular. Address C. C. VAUGHAN,

3-5d Columbia, Tenn.

R. R. MURPHY'S IMPROVED HONEY EXTRACTING MACHINE, AHEAD OF ALL COMPETITORS AT THE CENTENNIAL EXPOSITION OF 1876.

Catalogue No. 192.—Group 23.

R. R. MURPHY, Fulton, Ill., U. S.

Honey Extracting Machine,

Commended for being well made and efficient. The success of the operation, which is to remove the honey without injuring the comb, depends upon the care exercised to take the comb before the cells are capped. The apparatus comprises copper cylinder tinned on the inside, with a vat for the honey at the bottom. Inside the cylinder is a rectangular revolving frame, having its longer sides covered with sieve wire. The comb is placed in the box with the frames in which it was made, and the box is rapidly revolved by a handle and bevel gear. The centrifugal force causes the honey to discharge into the cylinder without the comb being injured, so that the latter is replaced in the hive, and the bees at once commence the process of refilling.

Signature of judges:

John Coleman,	James Bruce,
E. Oldendorff,	Pedro Paes Leme,
Ekedd Kenzo,	James S. Grinnell,

Also, manufacturer of all kinds of Section Boxes, and Langstroth frames.

☞For further particulars address,

R. R. MURPHY,

5-8d Garden Plain, Whiteside Co., Ill.

WANTED.

Italian Queens in exchange for Fancy Poultry and Eggs of all the leading varieties. Poultry first class and expect first class Queens.

5-6d KING & WHITE, New London, O.

Colonies and Queens.

IMPORTED QUEENS AT $4.00.

After May 20th we will sell imported queens at the above price.

Colonies with Imported Queen in April......	$13 00
" " home bred " "	9 00
" Ten or more, " " each "	8 00

Tin pails for honey, also Comb Foundation.

Send for circular. CHAS. DADANT & SON,

5d Hamilton, Hancock Co., Ill.

1878. Italian and Cyprian Queens. 1878.

We shall sell Italian Queens at the following prices: Tested, $2.00; warranted, $1.25; unwarranted, $1.00. All queens sent by mail and safe arrival guaranteed.

Our prices for Cyprian Queens will be as low as other dealers. We have had 16 years' experience with the Italians. Send for our new circular.

5 H. ALLEY, Wenham, Mass.

COMB FOUNDATION.

45 to 50 cts. Per Pound.

For particulars see price list, or send for circular. I refer you to A. I. Root Medina, O.

F. A. SALISBURY,

5tfd Geddes, Onondaga Co. N. Y.

BROOKS BROS' Circular and Prices of Italian Bees sent free.

4-9 Elizabethtown, Ind., Box 127.

Queens! Queens!

I am now ready to fill orders for a few choice Queens which were reared last Sept. All from imported mothers. Will make a specialty of importing Queens from Italy during the season.

Address, JOHN A. BUCHANAN,

5-8d Wintersville, Jeff. Co., O.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition, Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required*.

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First........................ $	10
	Basswood trees for planting. For prices see Price List........................	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey........................	2 50
	“ “ waxed and painted....	3 50
	Bees, per colony, from $7 to $16, for particulars see price list........................	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
10	Blocks, iron, for metal cornered frame making........................	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included........................	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included...........	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
1	Cages, wood and wire cloth, provisioned. See price list........................	05
12	“ “ “ per doz...........	50
	“ larger size, double above prices...	
20	Candy for bees, can be fed at any season, per lb........................	15
0	Cards, queen registering, per doz...........	06
0	“ “ “ per 100........ ...	40
60	Chaff cushions for wintering (see Nov. No. for 1877)........................	30
9	“ “ without the chaff...........	15
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard........	10
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting................	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100........................	75
20	“ “ top only, per 100...........	1 00
15	“ “ bottom, per 100...........	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)........... ..	22
	Extractors, according to size of frame, $6 50 to 10 00	
	“ inside and gearing, including honey-gate........................	5 00
	“ Hoops to go around the top....	50
	“ “ per doz........................	5 00
5	Feeder, Simplicity, (see price list) 1 pint...	05
7	Feeders, 1 quart, tin, (see April No)........	10
4	The same, half size,........................	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express...	2 00
	“ The same, large size, double above prices..............................	
2	“ 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps...	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)........................	20
25	Gates for Extractors tinned for soldering..	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	“ Vol's IV and V, each............	1 00
0	“ Vol. III, second-hand............	2 00
0	“ first five neatly bound in one...	6 00
0	“ “ “ unbound....	5 00
	Hives from 50c to $6 25; for particulars see price list........................	
0	Honey Knives, straight or curved blade...	1 00
	“ “ ½ doz........................	5 25
	“ “ ½ doz by Express...........	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list...	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept........................	25
15	Leather for smoker bellows, per side......	[illegible]
0	Lithograph of the Hexagonal Apiary.......	25
0	Magnifying Glass, Pocket.	50
0	“ “ Double lens, brass on three feet........................	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such	
0	as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard........................	10
10	Opera Glasses for Bee-Hunting............	5 00
18	Paraffine, for waxing barrels, per lb........	25
0	Photo of House Apiary and improvements	25
0	Queens, 25c to $6 00. See price list.........	
1	Rabbets, Metal, per foot........................	02
	Salicylic acid, for foul brood, per oz........	50
8	Saw Set for Circular Saws.................	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws................	
0	Scissors, for clipping queen's wings........	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each........................	05
	Section Honey box, a sample with strip of fdn. and printed instructions.............	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb..	25
18	“ Catnip, good seed, per oz. 20c; per lb.	2 00
0	“ Chinese Mustard, per oz.............	15
18	“ Mellilot, or Sweet Clover, per lb......	60
18	“ White Dutch Clover, per lb	35
	“ Motherwort, per oz. 20c; per lb......	2 00
18	“ Mignonette, per lb. (25c per oz).......	1 75
	“ Simpson Honey Plant, per package	05
	“ “ “ “ per oz......	50
18	“ Silver Hull Buckwheat, per lb.......	10
	“ “ “ “ peck, by Express	75
18	“ Summer Rape. Sow in June and “ July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions... ..	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
10	Smoker, Quinby's (to Canada 15c extra)....	1 50
5	“ Doolittle's, to be held in the mouth	25
	“ Bingham's $1 25; 1 60;	2 00
25	“ OUR OWN, see illustration in price “ list	75
2	Tacks, tinned, per paper, (two sizes)........	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Wax Extractor........................	3 50
	Copper bottomed boiler for above........	1 50
5	Wire cloth, for Extractors, tinned, per square foot........................	12
2	Wire cloth, for queen cages.............	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively...	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.......	06

All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.

SUPPLIES.

Bees, Queens, Hives and Material. Novice Extractors, Comb Fdn., Smokers, Books and Bee Journals. Honey Jars and Tin Cans. Send for Price List. B. B. BARNUM,
5-7d Homestead Apiary, Louisville, Ky.

TABLE OF PREMIUMS.

The first column is for those only; who send 5 or more names.

Names of Premium Articles. *Any of them sent post-paid on rec'pt of price.*	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	3
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

Italian Queen Bees.

I have propagated and sold Italian Queen Bees for the past 17 years. Will supply a large number for 1878. Send for circular. WM. W. CARY,
2-7inq Colerain, Franklin Co., Mass.

BROOKS BROS.' Circular and Prices of Italian Bees sent free.
4-9 Elizabethtown, Ind., Box 127.

ITALIAN BEES.

Imported and home bred queens; full colonies and nucleus colonies; bee-keeper's supplies of all kinds. Queens bred early in the season. Send for catalogue.
9tf DR. J. P. H. BROWN, Augusta, Ga.

R. R. MURPHY'S IMPROVED HONEY EXTRACTING HACHINE, AHEAD OF ALL COMPETITORS AT THE CENTENNIAL EXPOSITION OF 1876.
Catalogue No. 192.—Group 23.
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Honey Extracting Machine,

Commended for being well made and efficient. The success of the operation, which is to remove the honey without injuring the comb, depends upon the care exercised to take the comb before the cells are capped. The apparatus comprises copper cylinder tinned on the inside, with a vat for the honey at the bottom. Inside the cylinder is a rectangular revolving frame, having its longer sides covered with sieve wire. The comb is placed in the box with the frames in which it was made, and the box is rapidly revolved by a handle and bevel gear. The centrifugal force causes the honey to discharge into the cylinder without the comb being injured, so that the latter is replaced in the hive, and the bees at once commence the process of refilling.

Signature of judges:

John Coleman,	James Bruce,
E. Oldendorff,	Pedro Paes Leme,
Ekedd Kenzo,	James S. Grinnell,

Also, manufacturer of all kinds of Section Boxes, and Langstroth frames.

☞ For further particulars, address,
R. R. MURPHY,
5-3d Garden Plain, Whiteside Co., Ill.

COMB FOUNDATION,

45 TO 55 CTS. PER POUND,

According to quantity bought at one time. For further particulars see our Illustrated Catalogue, mailed on application. A. I. ROOT, Medina, Ohio.

JUST RECEIVED; CHOICE NEW CROP

Alsike Clover Seed.

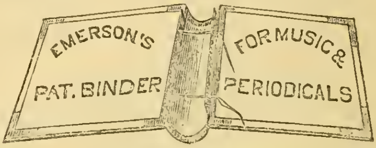
A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ½ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.
A. I. ROOT, Medina, Ohio.

DAVENPORT GLUCOSE MANUFACTURING Co.

MANUFACTURERS OF SUPERIOR DOUBLE REFINED GRAPE AND MALT SUGAR, CRYSTAL GLUCOSE SRYUP.

Superior Double Refined Grape Sugar for feeding bees, at 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb., by the barrel. Samples of the Grape Sugar will be sent prepaid, by Express, on receipt of 10 cents.
11-1y LOUIS P. BEST, Sup't, Davenport, Iowa.

We will furnish the above delivered on the cars here in Medina, at ½ cent in advance of the above prices. Or we will have it shipped from the factory, at factory prices. Any amount less than 50 lbs., will be 5c per lb. A. I. ROOT, Medina, Ohio.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

Queens! Queens!

I am now ready to fill orders for a few choice Queens which were reared last Sept. All from imported mothers. Will make a specialty of importing Queens from Italy during the season.
Address, JOHN A. BUCHANAN,
5-6d Wintersville, Jeff. Co., O.

BEE-KEEPER'S SUPPLIES FOR 1878.

Italian Queens—Nucleus and full colonies—Comb Foundation—Hives and Section Boxes complete, furnished on short notice. Ten years' experience in Bee-Keeping and Queen breeding. Satisfaction guaranteed or money refunded. Send for prices.

Eggs and chicks from high class land and water fowls.
2-7 VALENTINE & SON, Carlinville, Ills.

ITALIAN QUEENS.

All bred from imported mothers of my own importation. Dollar queens, $1,00; ready in April. Tested queens before June 1st, $3,00; after, $2,50. Full colonies of Italians from $7,00 to $10,00. Three frame nucleus with tested queen, before June 1st, $5.00, after, $4.50. Comb Foundation, Bee-Keepers' supplies., &c.
2-7d PAUL L. VIALLON, Bayou Goula, La.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. JUNE 1, 1878. No. 6.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more, 60c. each. Single Number*, **10c.**

MY EXPERIENCE. NO. 6.

QUEENS ENTERING THE WRONG HIVE.

PERHAPS the best way to tell you how I lost my queens is to quote from my diary.

June 16th. This afternoon, as I was passing in front of the hives, I noticed a small cluster of bees in front of the entrance to one of the hives that contained a young queen. I disturbed them, and found that they were clustering around a queen. [In all my readings, I never read anything about finding a queen in a cluster of bees outside the hive.] I thought perhaps the queen had flown, was tired, and had stopped outside the hive to rest; so I allowed her to enter the hive.

June 18th. Examined the other young queen's hive. Found no eggs, but found the bees building queen cells, and drone comb. Went to the hive that I divided last, cut out a queen cell, and gave it to them. I related the above to a bee keeper, who told me that whenever I found a queen in a cluster of bees outside the hive, I might know that it was a strange queen.

The next day, I examined the hive into which I saw the young queen enter, and found it in the same condition as the others. My hives, with the exception of the caps, were just alike in appearance, and stood in a row, six feet apart.

A little later in the season, I had four queens hatch in the same day, and had them all fertilized without loss. The hives were placed in different positions; around one, I tied a piece of red cloth; around another a piece of white; around another, a piece of black; and the other, being quite a distance from the rest, was left without anything.

COMB HONEY.

My comb honey was built in small frames. They were close fitting, except at the bottom. Enough were placed side by side to reach across the top of the hive, and a piece of glass was placed at each end. Two rows covered the top of the hive. A small piece of new comb was fastened into the top of each frame. As fast as frames were filled, they were removed, and empty ones put in their places.

EXTRACTING.

The two colonies which became queenless by the queens entering the wrong hive, soon contained several frames of solid honey. I kept up their strength, by giving them frames of brood in exchange for frames of honey. By the last of June, I had eight frames of honey stored away for future use. How I *did* wish I had an extractor; but I did not have the money to buy one. The bees were working finely in the section boxes, but I wanted to extract the honey from those 8 frames, and have the empty comb to use. After I had puzzled my brains several days, trying to "think out" a way to buy an extractor, the hotel keeper drove over, and wanted to buy some honey. He was going to have a party the "Fourth," and he wanted some honey for supper. He would give me 25cts a pound for all the new honey I could "rake and scrape," and never mind if some of the sections were not quite finished. When I came to "rake and scrape" the honey off the hives, there was more than I thought there would be. The money that I received for it, with what "loose change" I happened to have, was enough to send for an extractor. The extractor came just in the "nick of time," just as basswood commenced blossoming. I extracted from the outside frames only, leaving the brood frames untouched.

After using the extractor one season, I do not see how any one who keeps bees can get along without it.

SMOKE.

In the fore part of the season, when I wished to use smoke, I lighted a piece of rotten wood. Sometimes it went out; once or twice I burned some holes in my clothing; the tears that the smoke caused me to shed were not a few; and when I happened to get a "poor stick" of wood, I had to blow so hard that I wished I could "save my breath to cool my porridge." In September, I obtained a smoker. I don't know but I am putting it rather strong, but I will say that, for $1.00, I never before obtained so much satisfaction. It never goes out, there is no danger from fire, you can put the smoke just where you want it, and, if you wish, in large quantities. W. Z. HUTCHINSON.

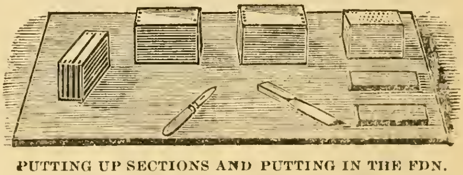
Rogersville, Genesee Co., Mich.

* * *

HOW TO PUT THE SECTION BOXES TOGETHER AND PUT IN THE FDN.

I WANT to tell about my using fdn. and sections, that others may benefit by my experience, and, more particularly, that you may tell me wherein I may improve. My experience is not very extensive, as I only used sections last season. I put together between 2 and 3000, size $4\frac{1}{4}$x$4\frac{1}{4}$. The sheets of fdn. being 12x18 in., I cut each one into 20 pieces, 3x3 6-10 in., using frames of lath (such as you have described) to cut them by. I used the point of a pen knife blade, but Carlin's cutter may be better. If I fastened into the sections one of the edges of the fdn. which had been on the outside, it was very likely to drop out; so I was careful to use only those edges which I myself had cut. In all my operations, I found it better to have the fdn. warm; the nearer to 80°, the better. You can cut and fasten it more easily when warm, and when I put the fdn. in the sections cold, it was more likely to drop out.

For a work bench, I used a board 12x18 in., which I held on my lap. Near the left hand corner nearest to me, I nailed two pieces, of the same thickness as the section stuff, and a little shorter than the sections, fastening them about $1\frac{3}{4}$ inches apart, so that the top of a section would fit snugly between them. For bending the top piece of the section open enough to let the fdn. into the groove, I used a stick 6 or 8 in. long, 1 in. wide, and $\frac{1}{4}$ in. thick, each side being beveled off for part of its length.



PUTTING UP SECTIONS AND PUTTING IN THE FDN.

This stick I laid between the before mentioned cleats, which were nailed near the corner of the lap board, and placing upon it the top piece of a section, pressed down the sides, thus opening the groove. The fit was so snug, that it was held open by the cleats, and I then put the fdn. into the groove, holding it in place with the left hand, while, with the right, I slipped out the beveled stick and pressed the section top down flat. Then taking in each hand a side piece, I put them loosely into the dovetails and put on the bottom, taking no pains to make a close fit, as that would come afterwards. Then, taking a pocket knife which was kept lying on the lap board with the large blade open, I slipped the end of the blade under the section, and pried it up, and piled it with others ready to be framed. Of course, I kept constantly on the lap board a pile of fdn., also of tops, of sides, and of bottoms.

For putting the sections into the frames, I had a very simple arrangement by which a frame was placed against a solid wall, 8 sections placed before it with their edges just started into the frame, and then a follower, so fitted that it could not fail to run true, with a single push, sent the sections home to their place, and at the same time, tightened all the dovetailed joints that had been loosely put together.

I found it quite important, to put the right edge of the fdn. in the groove of the section top. If you will look upon a piece of fdn., holding it so that only the edge can be seen by your eye, you will see that two of the edges (on opposite sides) will appear corrugated or waved. At first I put into the grooves only the straight edges, and if the knife had cut in a particular part of the line of cells, the fdn. was held in the section all right; but, if the cut varied a fraction of an inch from that place, the fdn. was thinner, and would drop out of the section. I also found that the fdn. would not always hang true, but was apt to slant toward one side. I supposed this made no difference, as I thought the bees, by their weight, and the weight of the honey, when the fdn. became warmed up, would make it hang plumb. This I found not to be the case; for the bees filled out the sections, with the fdn. wall hanging to one side, just as when first put in. Then I noticed the difference in the edges, and put the waved edge in the section groove, and found them to hang plumb without dropping out. I think you have stated that, if the top be split in two at the groove, it will hold just as well; but my experience has not verified this. If I split apart a top, I only feel safe in using it, by putting into the groove an edge of fdn. doubled together.

Of my 124 colonies, I expect to run the larger part with sections this year, and shall be very thankful for any suggestions. I shall want to put together several thousand sections, and it seems to me, I make very slow work. I wish I could tell you just how many I can put together in an hour. How many do your hands put together? Last year I used no separators, but think I must have some this year. My frames are 18 inches long, and the tin for separators 20 inches; shall I cut two inches off the tin, or bend over an inch at each end upon the side of the frame? What kind of nails are best for nailing the separators on the frame? B. LUNDEREN.

Thanks for your hints. I have thought of an arrangement similar to the one you mention for bending the top pieces back to let in the fdn., but objected to it, because I thought it unnecessary machinery, and the small boys and girls that I employ, would be sure to have some portion of their machine lost, or out of order. Besides, after several days practice, doing the same thing over and over, they acquire great celerity, in all these various kinds of handiwork. After they get used to it, they will open the groove across the knuckle of the fore finger, as given in the printed directions, and put the sections together very quickly. It is only the older and most expert hands, that can put up 4 in a minute, as I have mentioned in the directions. We do not take pains to have them all hang straight down, but put the hive in the sun, where the wax will get pretty warm, and they very soon hang as straight as a wilted cabbage leaf. It will not do to let them get too hot. The same is true with fdn. in the frames. At first we made the groove that holds the fdn., with too thick a saw; now we have one that cuts just a thin slit, and if the wax is quite warm and soft, as you mention, it will never drop out. If the tops get so dry that they are brittle, dampen them a little with a sponge on the back side when spread out on a table, and they will not break.

I would cut off the surplus tin, until you have enough left to fold over and make an edge of about ⅛ or 3-32; fold it a little more than square, and then lay it on a table, with the folded edges up; lay the frame on it, hook the tin over one end, and then, with the flat palm of the hand on the tin to hold it to the table, spring in the other end bar. This, if the tin is cut and folded just right, will strain the tin enough, to take out all waves or bulges. The drawing on page 57, Feb. No., will make it all plain. The separators can be used without nailing at all, but after some experience with loose ones, I have come to the conclusion that they make additional loose pieces to look after, and put in place, and that loose ones are not to be tolerated. We use a ¾ brad for nailing them on, 2 at each end.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

I AM very much dissatisfied with the fdn. you sent me. First, I wanted the fdn. *one inch thick*; I did not order the 1-16 inch fdn., nor did I want it. That you sent me, we all consider as useless goods, for bees, in this part of the world, and would not have it as a gift under any circumstances or conditions.

You failed to send it by express, as directed. When it arrived, one box was broken badly, the other one had two brakes on it, and every sheet of fdn. was broken to fragments; though, if I had ordered by the mail, that would have all been right, as I know the mail pitches and slings things any way.

If your purpose was to trap me, or to send me an April-fool you have done it. Should GLEANINGS stop coming, I will not be surprised. J. M. R.

Ala., April 27th, 1878.

Why, my friend, we would none of us fool you, for anything in the world; besides, we are all too busy, and hurried, in getting your goods ready, to even *think* of any such thing. I have had one of the clerks hunt up your letter, and you do not say a word about fdn. an inch thick; if you had done so, I do not know what we should have done, for none of us ever heard of such a thing. You *did* ask for, and almost insist on, *white* wax fdn., although I have told you in every price list, that it is much inferior to the yellow. This was why it broke in the mails, during cool March weather when you ordered it. To the other charge, that we sent it by mail when you ordered it by express, I shall have to plead guilty. The letter was brought me, and after giving it careful consideration, I decided to the best of my judgment, that did you know of the heavy express charges you would have to pay, clear to Ala., you would certainly thank me for sending it by mail. It is not at all unusual for us to have orders for goods, directing them to be sent to distant points by express, when they could be sent by mail for only a few cents, and in such cases I take the liberty of disobeying orders, and send by mail, just because I think you would thank me for so doing, if you knew the circumstances. Usually I do get thanks, but, some times, I fail in judgment, and then "how I do catch it." Sometimes, I think I will obey orders hereafter, and let them take the consequences of not being posted in regard to express charges compared with mails, but, pretty soon, some poor innocent friend has, unwittingly, had an express charge to pay, so much more than the value of the goods, that I repent, and conclude I will, as before, try to consult the greatest good, for the greatest number. If you will return the fdn., by mail, my friend, I will return your money, and pay all expenses.

TRANSFERRING AND ROBBING.

A BEGINNER'S TROUBLES.

I "BEE" in trouble, how I came to "bee" so, the following story will tell. I always loved honey, was always taught to respect the "busy little bee," and did so, until I learned that the greedy little rascals work themselves to death in about six weeks. To "bee" or not to "bee,—" that is the question that has been troubling me this spring. Last spring I had 11 hives; they increased until they numbered about 30. The worms got into several, 1 was brimstoned, and carried off one night, 2 or 3 appear to have been robbed by their fellows, leaving me this spring with 20 good lively swarms. Some are in rude boxes, some in box hives with caps or drawers, 2 in the "House" patent hive, and 1 in a "Buckeye." (The last, however, was one that was robbed by the other bees, and as it is the second time I have lost the bees in that hive, I have thrown it away.)

Well, I have had some experience in transferring and handling bees, had read and studied bee books till I understood the theory of bee-keeping pretty well, and was considered, by my neighbors, as being able to do most anything with bees. My bees were promising a large increase this summer. So far, so good. But, I was afraid to undertake the extra work, because we raise small fruit, and bees and honey come just when berries do; then, money was scarce to fit up with. To "bee" or not to "bee," was considered a long time. Finally, I concluded to "bee." I thought I was cautious, but I had to lay out money to the amount of nearly $20. for bee ware. I sent to you for a sample hive, I purchased a "Novice" extractor, some comb fdn., a lot of frames, lumber, &c., in Cincinnati, and before I hardly realized it, I hadn't the dollar left with which I meant to pay for GLEANINGS. I hired a carpenter, and we made up about a dozen hives. Sweet visions of long rows of jars and bottles, besides a barrel full in the cellar, to sweeten our buckwheat cakes with next winter, were before my eyes. I set apple blossom time for transferring. One day, I fixed up my transferring table, out of doors, as I had done before. I drove the bees out of a large box hive, heavy with honey, pried off a side, and began. Soon the robbers began to come. I tried smoke, more smoke, but alas! it did no good. It was too "fat" a thing. The bees got excited; perhaps I did, a little; I thought I kept cool, but I remember I sweat some. Finally, I picked up my traps, went into the smoke house, and by liberal use of smoke, made a finish of it. I put the hive on the stand, put my bees in, and as soon as I could, contracted the entrance; but hardly had I done so before the robbers were after us. They rushed in and out the entrance, and explored every crack and crevice. I plugged up holes, covered the hive with a sheet, smoked, and with the aid of coming darkness, got matters quieted down. That was about 10 days ago. Now apple blossoms are gone, but the weather is pleasant and clear.

To-day I made another attempt; I fitted up my carriage house for a transferring room, and with the doors well closed, and a good fire smoking, and care to keep all honey neatly cleaned up, I got through the first one nicely. I think the work was well done. I carried the hive to its old stand, poured out the bees before it, and they had mostly gone in, when I was called to dinner. Before sitting down, however, I went to see if all was right. I found even their *nearest neighbors* rushing in, all excited, and not even saying "by your leave." I smoked awhile, and then plugged them all in, robbers and all together. How they settled it in there, *I* can't tell.

This is not all. After dinner I took off the cover of one of the "House" hives, and took out about a dozen lbs. of nice honey that was in the small frames in the top, as I had often done before. The broken honey drew the robbers there, and before I was done, they were in force; and they didn't quit when I did, but rushed *en masse*, for the entrance; so I had to "plug" *it* up. Pretty soon, I looked at my transferred hive, No. 1, and they had "raided" *it;* so I plugged that up too.

Now, what can I do with such a demoralized set? Is there any kind of a bee penitentiary, where I can put these robbers? Is there any way or any hope of reforming them? How can I outwit them, and get my transferring done? Will it be best for me to wait till clover blossoms, and finish when honey is plenty, or could I do any better after they have swarmed? I confess myself puzzled now.

Lindale, O., May 1st, '78. WM. C. COOMBS.

I think, my friend, it might have been better to have bought less wares, and more bee journals; but as you have given us a very faithful account of your troubles, that may prove a good warning to others, we will send you our journal a year gratis. Your story shows conclusively, that the bees were getting very little honey from the fruit bloom, or they would not have been so thievish. The remedy is, with bees, as well as humanity, "deliver me from temptation." As soon as you saw how things were working, you should have closed everything up, and ceased operations. To push ahead, under such circumstances, is very dangerous; for when the bees once get demoralized and excited, there is quite a prospect of your ruining your whole apiary. After such a "raid," as you justly term it, you should not think of opening a hive, not even for a minute, for at least 2 hours; and where they get very bad, it may be unwise to do so for several days. If something needs attention very badly, such as removing queen cells or the like, you should do it just at dusk, when the bees are all at home, or even after dark. With a good smoker, in good trim, you can handle bees after dark very well. Your idea of driving away robbers with smoke, is a very mistaken one; it prevents the defenders from keeping their posts as sentinels, makes them all one scent so they cannot tell friend from foe, and gives the robbers a chance to overpower that they could not get otherwise. Wait until clover is out, so that they will not rob, and go slowly; if they get troublesome by the time you have finished one hive, wait until all is quiet before you try another. At any time when you are working among the hives, if you start the honey to running, and see bees loading it up, close, and clean every drop up, before they have time to get back for another load, and you will have no need of a bee penitentiary.

PROBLEM ON SECTION BOXES.

COULD there not be an improvement made in adjusting sections in the surplus chamber? When you get all your section frames placed in, keyed and toggled up, you have, as it were, a box full of sections. It is a box full of joints, which are so many inlets for air, and also just so many traps for bees; poor little dears!

Now I propose making a box with solid sides and ends, of thin stuff, and of proper dimensions; then I will space it off and put in dividing tins; next, I will nail on for the bottom just such strips as you nail on the bottom of each frame; and lastly, I will have a lid to shut down air tight. Now this *box for sections*, as I term it, can be easily hung or set in the chamber, will be air tight (except the bottom) will have no toggling, no stray pieces, and, better still, no joints to crush bees. The sections can be set in from the top, and a little instrument, like wire tongs with short bent points, can be used for lifting them out. From top and bottom a "peep" can be had at each section, giving one an almost exact idea of the state of completion without removing a single section. The most difficult point for me was to decide just how to adjust the tins, to be simple and effectual; but I believe that I now see it in the right light.

I, for one, will give them a trial, and if they prove satisfactory, will, if desired, give their construction in detail. Will you not give them a trial and report?

Rollersville, April 8th, 1878. D. B. Baker.

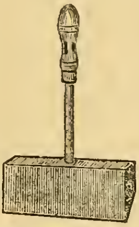
You have struck upon a point that has troubled me more than a little, friend B., and I have walked around the stairway, and rolled it over and over in my mind, "off and on," for more than two years; but, all things considered, I do not see how we can have it any simpler than it is. At one time I had a plan so fully matured that I had even taken steps to get out the lumber, and I was going to dispense with frames not only for holding the sections, but for the brood apartment also, and see how cheaply a hive could be constructed that would produce nice section boxes of honey, at a very small expense. The case of sections we used in 1876 was much on your plan, friend B., and they do very nicely, if they are all put on the hives at once, and all taken off at once; but even then some will be filled sufficiently for market, and some will not, and the amount of labor and fuss to overhaul and sort the cases is fearful, compared with the way we have them now.

Let us look into the matter; we have decided that we cannot dispense with the tin separators, any way, and so we shall save nothing on them by adopting any different plan. We have also decided that the bees must never have access to any part of the outside of the sections, on account of the propolis which so disfigures them and spoils their sale; therefore, we must have the bottom bars to the two inch frames, as before. It is true, we might have a thin board with slots sawed in it something like the old style honey boards, but this would cost about as much as the bottom bars, and would not be likely to be near as accurate. It must be remembered that the section boxes must stand exactly over the bottom bar that protects them, or we shall have a bad spot of propolis, to say nothing of shutting up the passageway, if they are a little on one side; also that it is next to impossible to have these match exactly, unless each row of sections is held exactly in this position, independently of the rest; that is, the rest must have no chance of crowding any one row of sections from its place, over its respective bottom bar. One summer I had quite a quantity of honey stored in common frames, and one day, as I lifted out some of the heavy white combs, I made the remark that if I could get combs like that, built so they could be separated into square cakes of 1 lb. each, and still be lifted from the hives with the facility of these combs, I should be content to produce comb honey. This wish has been fully realized, and I very much doubt whether we shall ever have any easier way of getting sections from the hive than by lifting them out, in a suspended case or frame, precisely as we lift out our brood frames. To go back; your box or case must have a cover to it, other than the cover to your hive, and so, even if we do dispense with the top bars, we must have some substitute for them also. This leaves us nothing but the end bars, and we certainly cannot get along without them, unless we attach our separators to the sections themselves, or to the end of the hive. The former plan has been used, but, if the sections are to be handled, it is quite unsatisfactory; the latter, mutilates the hives, besides it has been well proven, that the bees build comb better in sections double cased from the weather than with only a single thickness of lumber. If all this be true, we need just as much lumber in your case as in the seven broad frames; in the case, we can lift them all at once, or each section singly; with the frames, we can lift them in sets of 8 each, and 8 lbs. is about as much as one wants to lift out of a bee hive at once, and be sure of not killing a bee; with the case, you must lift 56 lbs., and it is a very hard matter to handle such a weight, without killing bees, or, if you attempt to take them out and put them back singly, you will find it a tedious task indeed, to say nothing of the slaughter of the little workers. All that seems to be left to consider is cheapening these 7 brood frames. Our price has been 4c each, but I really think they ought to be made cheaper. As you have taken almost all we could possibly make at that price, it has not been much of an object for me to think of lower prices, but I hope to be able to do it by another season. Four cents each for the frames would allow you 28c for your case, and I hardly think you could make one that would hold the separators and protect the sections much cheaper.

In the foregoing, I have said nothing of the convenience of being able to hang this frame of 8 sections in either the upper or lower story; this is a very important item, as it allows us to get nice comb honey at the side of the brood combs, or from a weak colony in a one story hive. In putting up the sections, the girls lay them into the frames as fast as done; when a frame is filled they hang it in a hive; and when a hive is filled, it is put in a pile with the others. The work all goes on methodically, and if it is stopped at any point, everything is closed up, and out of the way. Your case of 56 sections with the loose separators, it seems to me, is a much more complicated affair. I have used them both ways for several seasons.

IRON FOR FASTENING IN STARTERS.

FRIEND ROOT:—Here is what I use to fasten the foundation in the sections. Mine is 3¼ in. long, 2 in. wide, ⅝ in. thick, at the top, ¾ in. at the bottom. It will hold the heat a long time, and works splendidly. I had it made of wrought iron at a cost of 25 cts; it could be made of cast iron for very much less, and I suppose it would be just as good.



I put 11 swarms in the bee room last fall, and all came out in good condition this spring. The temperature was from 26° to 45° above 0. Let us hear from Mr. Perrine every month. Give us all the engravings you can afford to. They are a great addition to GLEANINGS.

HORACE LIBBY.

Lewiston, Mo., April 29th, 1878.

If heat is to be used, I think your arrangement, friend L., would be a splendid idea; but I would suggest that the irons be made of copper, and that you have a pair of them. For fastening natural comb starters, they would be just the thing.

Just as soon as Mr. Perrine sends us the photo, the engraving shall appear in GLEANINGS.

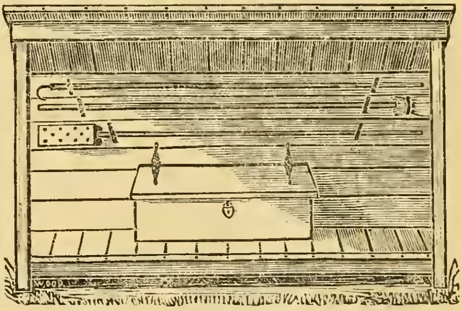
SWARMS AND SWARMING.

HOW TO MANAGE.

I STARTED out to give you a little of my experience about taking care of bees, in swarming time. For the first two or three years of my bee keeping, when I had only from 10 to 30 colonies, I lost by having swarms leave me, also by having large first swarms go together when they came out nearly at the same time. After years of experience and practice, I have learned that I can prevent both their going to the woods and their going together; and for the last 5 or 6 years, though I have increased my number to 100 swarms and, some seasons, to 200, I have not lost a swarm, or had two large swarms get together; but this result I could never have reached, except by the help of certain implements I have, and use in swarming time. With these, I can attend to 100 colonies as easily as I could to 20 without them, and, at the same time, be more sure of keeping them separate. With these, I can hive all my swarms and stand on the ground; I cut no limbs off, and I brush no bees from bodies and large limbs of trees. Let them swarm as fast as they please, 10 or 15 in an hour, I can take care of them, and keep them all separate, and it is only *fun.* I do not dread the "everlasting swarming." My hiving aparatus is a box made of ½ inch basswood boards, about 8 inches square, by 16 inches deep; one end is closed, and the other open. This should be nailed together so as to be as strong as possible, then with a ¾ bit, bore it full of holes on each side. Put this on the end of a pole which is light and yet strong enough to let down a large swarm and not break. A straight grained pine or basswood stick 1½ inches square will answer; take off the corners, bore 1¼ inch hole through the center of the box, and fasten it on *tight.* Then you want a pole of corresponding length, with a strong hook *fastened* to the end of it. This is one set for hiving. I want 6 or 8 of these, if I have 80 or 100 colonies. With these you need not wait for all the bees to light, but when ½ or ¾ have clustered, hold the box close under them, and, with the hook, jar the limb once or twice, holding your box still, and you will soon have them all out and into it. Then if another swarm comes, carry off these, in the box, to a safe distance, or let them down and cover them closely with a sheet. The other swarm will nearly always light on the same limb. I have taken as many as 6 off the same limb, setting away the box with each swarm, until I could get time to hive them. Then, to prevent their lighting in places where they are hard to get at, and much time is required to hive them, I have one or two long poles with a bunch of grass tied tightly on the end. Put this in any place where they *first commence lighting,* and keep it in motion for a few moments, and they will leave for some other place. When the swarm is all clustered in the box, you can hive them at your leisure. Let them down carefully, holding the box horizontally until you get them where you want to shake them by the side of the hive or into it, then turn it so the open end is down, jar or shake them out just as you choose, and the work is done, only you must constantly be on the lookout for other swarms coming out to get with them. Have 3 or 4 good sheets where you can get them in a moment, if needed to cover a swarm. But this epistle is already too long. Perhaps at some future time, I will say something about their leaving, or not leaving rather, for the woods.

Cochranton, Pa., Apr. 22, '78. N. N. SHEPARD.

Not a bit too long, friend S. May I suggest a basket instead of your light box, and the arrangement given on page 179, of Vol. IV? Your ideas are excellent, and I admire the ingenuity with which you have made yourself master in nearly all the various contingencies of natural swarming. Your remark about having the sheets ready for covering the extra swarms, is excellent; and not only the sheets, but your poles, boxes, queen cages, empty hives, and everything which you have learned by experience you may need, should be kept in a neat, handy place, a small, neat shed, for instance, such a place as would be always easily "get-at-able," and would protect the utensils sufficiently from the weather. I think I will have our engraver give us a view of such a——



REPOSITORY FOR SWARMING IMPLEMENTS.

I guess that is what we shall have to call it. By the way, our engraver has just begun to be a bee-keeper; has wintered over successfully, a nucleus containing one of friend Pike's Albino queens, and he has just purchased 3 more colonies of black bees. He transferred one of them last Monday, and I guess he did it well, even if he did leave the entrance open so wide that they got to robbing rather vigorously.

A B C CLASS.

THE colony of Italians shipped the 27th, arrived at my office, Friday 29th, and seem to be all "O K." I am a 'bran new" hand, and never saw a "movable frame" hive before, and you may *guess* I was puzzled to unship them, and set them up in a condition to work, with no person present or near to explain; but, with the exercise of common sense and the aid of GLEANINGS, (fly leaf) I finally found *where* the "enameled cloth" was to go, and the "*pad*" in one of the covers, &c. They are *working,* and I am *studying,* puzzled and confused *more* over "brood comb," "queen cells," "larvæ," "fdn.," &c., &c., that I find in your A B C book, than I am in managing my farm of 200 acres. Well, I am going to try to learn "bee business," and will depend upon you to carry me through the school, and will cheerfully compensate you for *all* you may do for me. I have 5 strong colonies of black bees in the old fashioned "gum," and have bought 2 Langstroth hives complete, for $5.00.

Now, Professor, some questions; shall I *keep* my black bees? if I *do*, will they mix, if I keep my Italians on one side of my orchard and blacks on the other? or had I better make frame hives, at once, and put all my black swarms into them, and sell them?

Had I better let my Italians swarm naturally this season, while I am so *green* in the business?

I can not understand how I am to get the surplus honey in the "section boxes" you describe, and so I have concluded to send to you for a Simplicity hive. My father, who is still living, has had bees for more than 50 years, 20 years before I was born. Often we had 30 "stands," as we call them, and often not more than 2 or 3. We always used the "gum" hive. So, you see, I have been *looking* at bees all my life, but, I confess, I have heard and learned more about the *habits* of the busy little fellows in the last 12 hours, (since receiving the "A B C," and GLEANINGS, and the *hive itself*) than I had learned in all my life before, thanks to you. Excuse my length this time. S. G. HILLIS.

P. S.—In answer to your notice on shipping tag, (which I overlooked at first) I take pleasure in stating that the bees were securely packed, and arrived in perfect order, with every evidence that you take a proper interest in your customers. The people here are perfectly delighted with the Italians, and the looks of your hives, but none of us have any practical knowledge of the improved plan of managing bees. S. G. H.

Concord, Ky., April 6th, 1878.

Stop calling me "Professor," and talking about compensation, and I will tell you all I know.

Keep your black bees, of course, but change the black queens for Italians, just as soon as you can scrape up bee knowledge enough to raise the queens. Your hives may as well be within one foot of each other, as to have the blacks on one side of the orchard, and the Italians on the other. They often mix, when as much as 2 or 3 miles apart. With the A B C book, and the Simplicity hive, you will have no trouble in getting the "run" of it all, especially, if you study the *bees*, as well as the books. You are on the right track, and will very soon be able to talk brood combs, queen cells, larvæ, and all that, with any of us. It seems but a very little while ago, that Nellis, Viallon, Shaw, and many others of our most expert queen rearers, were asking just such questions as yours, and now they bid fair to leave even the veterans far in the rear.

THE $50. DAMAGES TO MR. BURCH.

IT seems from the May *A. B. J.*, that this is not yet dropped, after all. It is true, I did, in a private letter, accuse friend Burch of falsehood, but the circumstances were such, that I felt it my duty to do so, and I tried to do it in a kind way, for his own good, and not because I had any ill feeling toward him. It was on a matter that did not concern fdn., at all. On learning afterward that he was a Christian man, and, if I am correct, an earnest Sunday school worker, I wrote him an apology, feeling sure there was some strange mistake in the matter, and that I had erred in judgment, in the course I had thought best to take. I am perfectly satisfied to pay him the $50. because I think he is honest in thinking he ought to have it, and for the sake of peace, if money would bring peace and good will, I am willing to pay even more. But there is another side to this, and one that, for the good of others, I *must* mention. The affair establishes a bad precedent. Seedsmen have invariably, I believe, declared they cannot be responsible for the crops raised from the seed they sell, even should it transpire that the seed was bad. They will furnish more seed, free of expense, in such cases, but this is all they can do. If the fdn. I send out is unsatisfactory, I will return the money, and pay all expenses both ways, on return of the fdn.

I received from Mr. Burch pay for only 24 lbs. of fdn., something less than $18. He did not use all of this, as appears from the card below. I think it was not right for him to ask for, or to take the $50., because it left the door open for similar demands from others, and in transactions I have had nothing to do with. Several cases have come up since, concerning bees that have been sold, and other things, and some of our readers have come to me, to settle cases of like nature for them. I would suggest that we make it a general rule, that goods, bees, or other things, that are sold, if the matter cannot be arranged by the payment of small differences, be returned, and the shipper pay expenses both ways. Of course both parties are to use all possible care in saving each other all needless expenses. Do not return the goods, until full explanations have been given, and both parties are fully agreed in the matter. Do it all pleasantly, and when over, *remain* friends.

I do not wish to throw blame on friend Burch, and am willing to call it all errors of judgment, rather than intentional wrong. I hope he is a better Christian than I am; in one respect he has set me a good example, for he has been laboring for the good of the young men of his town, and has been content to say nothing about it, leaving others to tell of his good deeds, if they are ever told at all. To show that he was, at least in part, at fault in his judgment in regard to the fdn., I append a postal card, that just came to hand.

Please send H. W. Burkholder sample copy of GLEANINGS, to Bear Lake Mills, Vanburen Co., Mich. Please send me your price list. Buckholder told me, the other day, he got 5 lbs. of fdn. of the man to whom you payed $50. for making his wax up, and it worked all right. He wanted to know where he could buy it this year; so I write you in haste. D. BUTTON.

Bloomingdale, Vanburen Co., Mich., April 27, 1878.

BEES TO LOOK AT, &c.

CAN you furnish me with a four frame nucleus of Italians on fdn. started combs? I want them in standard L. frames, and would particularly like the "yellowest" or lightest colored to be had. "Albinos," *if there are any such*, would please me, as I want them to *look at*. I would pay a higher price for them than for dark colored bees.

I am sorry to say we cannot send combs built on fdn., until they are 1 or 2 years old, because they would be pretty sure to break down in shipping. We, on this account, usually select the oldest and toughest combs we can find. If bees to look at are what is wanted, I do not know but that friend Pike's Albinos may be a pretty good thing after all. There is so much call for the very yellow bees, that I confess I have hard work to keep a choice colony of this description. Last fall, I sold the very lightest and yellowest for $18., and the purchaser took them to a State fair, and got $25 premium on them, because they were so very gentle, as well as pretty. The best one we have now in our apiary, we use to get bees from to put in with queens, before we re-ship them; should I go to other stocks, they would be pretty sure to sting the queens, and that you know would be expensive business. If you keep raising queens, you will get now and then, one that will produce these gentle yellow bees. At present, I have none for sale.

You invite criticism, and though it seems hardly proper for a newly fledged amateur to attempt it, on the products of an old professional, yet I think I will do so and disregard consequences.

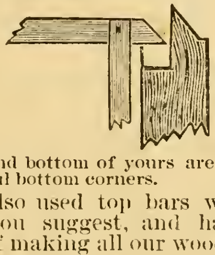
HEAVIER TOP BARS.

In the first place, I consider the top bar, on your brood frames, much too thin and weak for a heavy comb to be suspended from it continually. I have seen heavier bars sag in the centre and become warped from this cause. You further weaken it also, by cutting a groove in it for fdn. Your method of inserting the fdn. is not handy or very practical for those not having special conveniences; this I know from experience. Neither does the sheet of fdn. hang exactly in the center of the frame, as theoretically it ought to do. Metal hangers for top bars I consider a needless and expensive addition, when *metal* rabbets are used; in fact wooden ones are preferable, as they move easily enough, and not too easily.

Our top bars are made considerably heavier, and a much heavier comb guide is added, and I think them now strong enough. In transferring heavy combs, there is a much greater danger of sagging than where combs are built naturally, or on fdn.; because in the latter cases, the comb, when it gets old and tough, adds greatly to the strength of the frame. We have metal cornered frames made of ⅛ inch stuff, that have done excellent service. but the combs were built naturally, and the honey was for several years taken out with an extractor. before it could become very heavy on the frame. I dislike to have top bars unnecessarily heavy, because it makes the frame so unwieldy to handle. I think the dimensions given in our circular, 11-32, about right, if we have a strong comb guide, to give additional support. We have, this season, sold a great many thousand all wood frames, and they are having a pretty good test, but for all that, the metal corners are being called for in far greater quantities than ever before.

BEVELING THE ENDS OF TOP BARS.

For your top bar, I would substitute one about, or not quite, twice as thick, with beveled ends; thus:

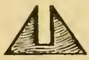


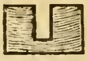
The sides and bottom of yours are well enough, and also metal bottom corners.

I have also used top bars with beveled ends, as you suggest, and have thought seriously of making all our wood frames in that way. It has not been done, because it would somewhat weaken the projecting ends, and it would also add considerably to the expense. Our neighbor Shane, uses frames with the projecting arm sharpened on each side, instead of being beveled down from the top, as you have it. His plan admits of doing it in the board, before the strips are ripped off, but yours would require a separate handling of each piece.

FASTENING IN THE FDN.

The fdn., I should insert in a very different way from yours. If practical to manufacture, I would recommend strips of a triangular shape, with a groove nearly to the bottom, thus: Tack one side to the frame with brads, then spring open the groove, insert the fdn., and tack down the other side; or, if the triangular shape is difficult to make, use a strip like this: Mr. W. W. Cary, Jr., has made me several hives with frames like above and suggested the improvement. **John D. White.**





Chicopee, Mass., April 17th, 1878.

The device you mention for holding the fdn., is precisely what we used, when we first commenced to make fdn.; but it is an additional piece to be added to the frame, it must be fastened on with nails, or brads, and although it is a great deal more work, I do not see that it is one bit better than the simple plan of rubbing the fdn. on the comb guide, as I have advised. The strips of grooved lumber can be made at a little expense, but it is some trouble to put them on.

A WOMAN'S OPINION OF THE R. R. AND EXPRESS CO'S, AND SOME OTHER THINGS.

WITH all your faults, we *love* you, because you have a tender conscience; but pray, do not lacerate it any further, or add to your manifold cares, by looking after the interests of the railroad and express companies. The following figures tend to confirm the general opinion, that they are abundantly able to take care of themselves.

The little box of shipping cases, frames, &c., which you sent us *by freight, to save expense*, reached us in 12 days, weighed 65 lbs., and cost $2.42, at the rate of $3.72 per hundred; while they freight from Chicago to New York, for 15c per hundred, and from St. Louis to New York, for 10c. Do they not play high? do they not play low? the game certainly is theirs.

In Cincinnati, after smashing up a lot of light comb honey, so that it had to be dumped into butter jars, and reducing it from 360 lbs. to 237¼ lbs., they said they were not to blame, and collected $9.00 expressage; while honey is carried from California to New York, for $8.00 per hundred.

FUMIGATION.

I read Mr. Doolittle's statement as to the necessity of fumigating box honey, with some disquietude; but your report in April Gleanings, together with another year's experience of my own, has reassured me. I have never been troubled with worms, though I have had a supply of honey the entire winter for several years. Last Aug. and Sept., we put nearly 3,000 lbs. directly from the hives into the kitchen chamber, with an uncurtained south window. It was hot enough in that room to hatch worms, if not to roast them. About that time, I saw a worm or two in an exposed glass box; but, from its rarity, it occasioned no alarm, and was so little regarded, that I did not even watch the honey in consequence. We have sold honey all winter, and have not seen or heard of a worm, web, or damage. During the past month, we have overhauled, boxed, and shipped what remained, about 1800 lbs., and only found one small worm ¼ inch long, which was dead and had done no harm. But, (I must confess it) I did find one small web, and a few cells uncapped, perhaps a square inch or two altogether, which was the first and only thing of the kind I have ever noticed.

CLIPPING QUEEN'S WINGS.

While it may be easy for *you* to open the Simplicity hive, lift the right tin-cornered frame, and clip the queen before she knows you are around, I believe most of your readers, especially those who have other hives, other frames, and less steady hands, would by some slip or jar apprise her magisty of danger, 99 times in a 100. Then, by following your advice to close the hive and be more careful next time, I believe they would still fail 98 times in 100. At this rate of progress, how many times would 100 hives need to be opened to clip 100 queens.

After the queen has taken alarm, she can be clipped, by following her with the open scissors all about the comb, all over your lap, all up your sleeve &c., till, in some favorable instant, you dare to close the scissors upon the coveted lace wing. But this operation is the most trying to the nerves, of any that ever I did, and I could not advise beginners to practice it. Because my queens *must* be clipped, I had to find a better way; and because I pinched and maimed my first queen, while clipping her, so that she was useless and had to be replaced, I have never *touched* another. How many queens have been injured by handling no one knows. I like to *know* that mine are *not* thus injured because absolutely untouched. I set a small wire cage over the queen on the comb; when she runs up it - sooner up a small cage than a large one—I lift it, pick off two or three bees by the wing and put in for company, carry them into the house, and let them loose on a clean window. She can be clipped here in motion better than on the comb; but after allowing them to run awhile, guide them near each other and the bees will feed the queen, when the work can be easily done. I have since found out a more expeditious way; while the queen is passing from the cage to the window let her back or wing gently brush a drop of honey on the end of the finger, and she will soon stop to clean it off. I have had queens fly after being clipped, but when I cut off the large wing on only one side, just deep enough to take the tip of the small one in the same clip, she never flies again. It wounds her but little, as I give a slanting cut, taking more of the lace than of the fleshy part. Set the cage over her as before, carry her to the hive at once and let her run down among the combs, not in at the entrance. If all the mum old bee keepers have known all about this, all these years, you are not the only man that *ought* to have a troubled conscience. A. L. GOULD.

Ridgeville, Iroquois Co., Ill., April 13, 1878.

Many thanks for your very kind opinion of my humble self, Mrs. G. This world is full of care and worry, and mistakes, and misunderstandings, to say nothing of careless and wilful wrong. "Forgive our debts, as we forgive our debtors." Just at this minute, we are about returning 3 separate pieces that belong to our engine, and although their value is but a few cents, a shop full of workmen are very much discommoded, and a heavy loss falls on my shoulders, because the manufacturers sent us an old worthless piece, instead of the new one that I ordered. Very likely, some boy or careless clerk did the business, but,—steady—steady—boys and careless clerks are, at this very minute, filling your orders, and it may be in the same way. Why do we not employ more skill and pay higher prices? We cannot afford to do it, unless we charge you so much for goods that we should be ashamed of ourselves; and very often the high priced labor makes almost as many ridiculous and humiliating mistakes, as the cheaper. When a business assumes a considerable magnitude, the liabilities become still greater. Are there no large firms who send just the right thing, and at the right price, and never make a body feel like shaking them for their awkwardness? I scarcely know of one, and I am buying supplies and raw material from almost all over the—I was going to say world, but I am afraid it would sound too pretentious. Well, now I am inclined to think it is the same with the railroads; they are great and unwieldy, and even though Christian men have them in charge, a great part of the evils you mention, seem unavoidable. You may never know how much some kind and gentle hearts deplore the evils of the very Express business they have charge of, but find themselves, in this great sea of business, almost helpless. Do not be disheartened, for I think we are gaining ground day by day, and that the facilities for getting things from a distance are being constantly improved and cheapened. Losses occur, in all kinds of business, and while I stand willing to pay, as far as I can, for all the blunders I make, I also try to feel toward those who so severely try and worry me, almost out of my senses sometimes, "Father, forgive them, they know not what they do." I do not believe, by any means, in letting every thing go, for this is not right, not justice to either party; but when you make out your bill for damages, do, my friends, be lenient, and do it with the spirit, "forgive our debts, as we forgive our debtors." Both the companies referred to above, have many times made me feel that they were human after all. Do not be troubled about my tender conscience, for I am not sweet tempered toward them all the time, by any means, but may God give me grace to do my part better, and should it ever be in my power to do any thing to right these wrongs, may He give me strength to do it well and fearlessly.

I am very glad of your experience with comb honey and fumigating, and your hints in regard to clipping queens wings are so sensible, that I think I shall embody the main points in the A B C book.

COMB FDN.; SAGGING AND BULGING.

"KEEP IT BEFORE THE PEOPLE."

I DO not remember seeing my remedy given by you or others who make fdn., for the bulging and sagging of same when being built out.

I received 25 lbs. of you this spring, and now have a number of cards full of brood and eggs, and as nice as one could ask for. On the 4th day after they were placed in the hive, I made an examination, and found a part of them just right; they could be no better; while another portion were distorted, twisted and bulged. I used some of it last season, and had no such experience. One piece, in particular, was in such a horrid shape, that I at first thought it utterly ruined; and if I had felt any ways sceptical in regard to the success of fdn., I would certainly have "tucked" it back into the hive, and rushed for my pen, to tell somebody what a failure it had been with me. But *my* faith was not so easily shaken, and instead of becoming demoralized over the matter, I set about devising a remedy for their uncouth shape. I will first give the shape I found them in, that the remedy may be the more intelligible.

The bees always begin at the top to build them out, and, with me, always complete one side ahead of the other. This will cause the sheet, sometimes, to balance over toward the uncompleted side, and as soon as the corner touches, or nearly touches the side bar, just so soon will it be fastened. Now as the bees go on finishing this side, of course it stretches, and as the corner is fastened, a bulge will occur just above. I found mine not only bulged as stated, but the opposite side was stretched too long, causing another large bulge. My remedy was, to cut it loose from the bottom bar and take out about ½ inch; also to cut the corner loose and take out ¼ inch of the comb. This lets it swing clear until completion. Then, with my hands, I carefully straightend the comb, and now every one of them is a perfect specimen of brood cards.

It has been said, "Up to this time, comb fdn. has not been a decided success." Now, pure bees-wax fdn., with proper management, *can not be a failure*; and I verily believe that, if all who make it for sale, would keep the management I have given constantly before the people, there would be no further complaint. D. B. BAKER.

Rollersville, O., May 2d, 1878.

In addition to your kind suggestion, friend B., I would suggest that the sheet of fdn. be hung in such a part of the hive, that the bees be induced if possible, to build out both sides at once. We generally secure this in our apiary. It is true, occasionally, a bad comb will be found now and then, but the worst cases can be brought out in good shape by the plan you suggest. A pocket knife, and a very little time, will be all that is needed. While extracting, we can bring bulged combs into shape with a very little touching up with the fingers and honey knife.

FEEDERS.

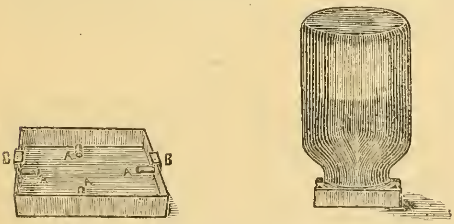
THE HAINS' FEEDER.

SOME time ago, I sent you a tin feeder, which you noticed in GLEANINGS for April. In response to your wish to know who sent it, I dropped you a postal card. After reading my GLEANINGS, I concluded this card did not reach you; therefore I take this occasion to say you are welcome to use it. I never had a thought of patent (as hinted at, by a correspondent), or of making money out of it. I never saw or heard of it, until I made it for my own use. I like it better than any other I ever used. For inside feeding, I use them long enough to reach from honey board to bottom, and 1½ inches in diameter, a row of them taking the place of a frame. I also send you to-day a cover on the same principle, to fit the Mason jar.

I wintered 50 swarms; have reduced to 40 by uniting the weakest; all are in excellent condition. They consumed on an average, during the winter, 11 lbs. 10 oz. of honey; the largest quantity used by one swarm, was 26 lbs.; the smallest, 8¼ lbs. Wintered on summer stands, in solid rows, protected on the north side, and covered with sacks of chaff and autumn leaves. J. B. HAINS.

Bedford, O., May 13th, 1878.

Below we give an engraving of the device to be fastened on a quart fruit jar.

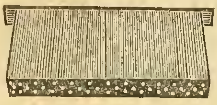


HAINS' FEEDER FOR A FRUIT JAR.

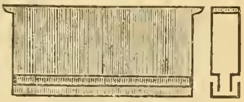
The jar may be filled level full, before the cover is put on, and it is then to be inverted quickly, in the same manner as the pepper box feeders. The advantage it has over the latter is that it feeds more rapidly, the places of exit being larger, and the holes never get stopped up and need punching out. Those who remember the article, "Water For Bees," page 74, Vol. V. will recognize the principle as being exactly the same; friend Hains has attached the shallow dish to the glass jar, so it may be inverted with it, and that is all. I have cheerfully paid him the $10. for the suggestion, and am willing to pay for any device which I think well enough of to adopt and manufacture.

THE DUNHAM FEEDER.

This is simply carrying the idea that friend Hains almost strikes on, in his letter above, a little farther; instead of making the feeder round, it is made oblong, and the depth of a frame, and is in fact made to hang in the hive, just like a frame. The lady who invented it, uses it as a pepper box feeder; that is, she simply has the bottom perforated. As this arrangement is much more apt to be leaky, especially, if the hive and machine are not kept exactly level, I would prefer the Hains plan of having a shallow dish at the bottom, instead of perforations. We give below a drawing of both kinds.



DUNHAM FEEDER.



MY IMPROVEMENT.

Our friend writes as follows in regard to it.

If you are willing to engrave and describe the feeder in GLEANINGS, naming it "The Dunham Feeder," and say that I am not going to have it patented,—which would only raise the price,—and that I hope all bee keepers will respect my right to it, I will be sincerely obliged to you. If you are not willing to do so, I much prefer that you say nothing whatever about it, for the present.

You suggest what you think an improvement; I decidedly prefer it as it is, and, even if I did not, would not think it right to take, or rather steal any one else' idea. The only improvement I have made, is to make it 5 instead of 9 inches in depth.

Thanking you for your kindness to a *lady*, I remain yours truly FRANCIS DUNHAM.

Depere, Wis., April 23d, 1878.

I think we will all respect your wishes, my friend, and as an encouragement of the inventive genius of your sex, I will offer you $25. for the privilege of manufacturing your feeder, with the Hains' modification I have suggested, at any time when you may see fit to allow me to do so.

There is one difficulty with all these atmospheric feeders, and that is, that they have all got to be removed from the hive to fill them, which is not the case with the Simplicity feeders, and all of like construction. As the Dunham feeder, or even the other, can be made to hold 25 lbs., or sufficient for winter, at one feed, it does not very much matter, unless we wish to feed a little every day for stimulating purposes; I confess my experience in feeding has led me to conclude that too much is far better than not quite enough. Still, it is not very good economy, to fill our hives with syrup or grape sugar to such an extent, that it remains stored in the combs, and in the way. To sum up, I really do not know which kind of feeders I prefer, all things considered. Feeding grape sugar syrup, in the open air, in Hains' feeder, seems now to be the least trouble, and to give best satisfaction all around. Just now, between fruit blossoms and clover, the bees are taking it with great avidity.

Of course the Hains' feeder, and almost any other, for that matter, can be made of any desired size, and I once used one made of a barrel. Where one has a large apiary, it may be quite a saving of time, to make such a one, and then have no further trouble with feeding. This of course, is to be used in the open air. There is only one trouble, and that is, that the bees may suddenly abandon the syrup, because natural stores have come; for, at such a time, they cannot be induced to notice the grape sugar any more.

◆

FROM FRIEND MOON.

SWARMING.

THE spring has been one of the most favorable ones for bees, that has been known for many years. The Italians commenced to swarm, in these parts, the 15th of March; the black bees, not until the 10th of April. Some of the first Italian swarms have already cast other swarms.

HONEY.

Considerable honey has already been taken, and bee keepers begin to see the importance of putting up their honey in fine market order. In fact, bee culture in the South is moving on rapidly.

IN THE GROUND.

A Mr. Payne, living about three miles from this place, found a bee tree this spring, where the bees entered the tree at the ground. He felled the tree, and found the bees nicely located in three large roots that were hollow, the combs extending some three feet below the surface of the ground. They were a large swarm, and had, no doubt, enjoyed their domicil for a number of years. He placed them in a hive, where they are doing well.

Bees, after leaving the parent hive, and being deprived of a home, will accept a habitation wherever they can find one. We have known them to enter dwellings, where they seem to live in perfect harmony. A. F. MOON.

Rome, Ga., May 10th, 1878.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, JUNE 1, 1878.

Thou wilt surely wear away, both thou and this people that *is* with thee: for this thing *is* too heavy for thee; thou art not able to perform it thyself alone.—Ex. 18:18.

If thou shalt do this thing, and God command thee *so*, then thou shalt be able to endure, and all this people shall also go to their place in peace.—Ex. 18:23.

◆

WE have looked anxiously for Prof. Cook's new book, but it don't come, as yet.

◆

FRIEND Bingham has put the price of his smallest smoker, at $1.00, by mail, and 90c, by express. I am very glad, for it is a very pretty little machine for the price.

◆

PERHAPS I should apologize for allowing a place, this month, to so many letters in praise of the Simplicity smoker; but, you see, I thought my friend Cook was a little mistaken in his criticisms of it, and so I wanted to let others "talk."

◆

THERE are 66 of us working for you, and I verily believe we are all doing about the best we can even if things do move along slowly. We may be awkward and blundering, but we mean to be honest, and some of us are very tired, from working both day and night, for so many weeks.

◆

THE weather was lovely, and the bees were swarming in April, and every bee man and woman was happy; but the frost came, and the bees starved and robbed each other, and they all (*we* didn't have any starve in our apiary, 'cause we just kept 'em raising brood right along until locust and clover, by feeding grape sugar, in the open air) looked sober, and thought of Blasted Hopes.

◆

IN my opinion, no sort of a hinge is admissible in a bee hive, and I have given the matter careful study and experiment. This will have to be taken for an answer, to a great number who are working on the Chaff hive problem. Almost all the devices sent will kill bees badly, and besides that, propolis would, in time, prove a very serious obstacle to their working.

◆

AT the very last minute before one of the forms went to press last month, our "youngest printer" took the cut of friend Martin's frame supporter out, to raise it a little, and—put it back upside down. As the correcting had been all done, it was not noticed until the whole edition was printed. When looking at it, turn your Journal "bottom up," and you will see it all right.

◆

"Do you like that cake?" said Mrs. R., as I helped myself to the second piece.

"I do, most certainly," said I, and I wondered why she was so particularly interested.

"Because I got the receipt for making it, out of the little book that was sent you by the editor of the *American Bee Journal*, "Honey as Food and Honey as Medicine."

We mail the little pamphlet, to any address, for 10c. I am inclined to think it rather exaggerates the value of honey as a medicine, but the cooking receipts, alone, ought to be worth the 10c.

◆

SINCE writing the note at the end of B. Lunderer's communication, we have fixed several boards, and, with their aid, our *small boys* put the sections together just about twice as fast as they do without them. I am inclined to think even the experts will, with practice, work faster with them; very much depends on having every thing arranged just right, that there may be no false motions with the hands, or waste of time in reaching farther than is absolutely necessary. Also, let me once more implore you, if you would work rapidly, to keep your stuff in neat piles, and not, under any circumstances, let it get scattered about in disorder. Our small boys, aye, and girls too, have some of them a way of getting their pieces down under their feet, in a way that is excessively trying, to at least *one* individual. To tell the whole truth, the "big" boys and girls are not entirely free from this fashion, where they are at work at hives, frames, etc. Oh humanity! why *will* you be so careless, and heedless, and bring so much trouble upon yourselves and those who are *obliged* to make good the consequences of it. I beg pardon for so often recurring to the one thing, but I am led to feel that most of the "Blasted Hopes" in bee culture, come from this one evil.

◆

QUEENS.

THE frosty weather, or something else, has "raised hob" with our queen speculations, during the month of May. Quite a lot of our imported queens we wintered over have been lost; some in transit, and some by introducing, and all together, we seem to have Blasted Hopes all around. I will stick to my offers in my advertisement, just as long as I possibly can, but please do not ask for any better terms, or any deviation. If you should take a hundred queens all at one time, I could not furnish them a cent lower; neither can I promise to answer all your questions about them. If others offer imported queens for $4.00, I am glad of it, but I cannot undertake to be responsible for their precious little lives, for any less than prices I have given.

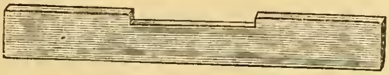
VENTILATING QUEEN CAGES.

Quite a lot of cages have come to hand with the queen and bees all smothered; and one friend from Atlanta, Georgia, sent a box of tested queens by express, with a board tight against the wire cloth, and paper stuffed in the box besides; there were small holes in the box, but none of them communicated with the wire cloth, and all but two of the queens were dead. This is rather expensive experimenting.

A lot of queens came from the same State, the same day, by mail, and every bee and queen was alive and active. Be sure that your candy is not too dry; even if it is quite soft, when put in, it will soon harden enough, in these small cages

[*Chaff hive; continued from last month.*]

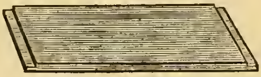
This rim, when nailed true and square, is to be fitted to the tops of the corner posts; the posts can be given the proper bevel, with the circular saw, before the siding is nailed on. This bevel is the same as that of the siding. The top pieces of siding are to be of pretty good thickness, that we may nail this rim securely to it, as well as to the posts. It may be well to state here, that the top pieces of siding are nailed on first; 7 pieces, of the dimensions we have given, form the hive. Before nailing in the last piece, you are to cut the entrance in the upper edge. This entrance is to be 8 inches long, by ⅜ wide. The cut below will make it plain.



Having now completed the outer shell, we will see about the inside.

INSIDE OF CHAFF HIVE.

This, as well as the outside, is all made of cheap cull lumber. I would, by all means, advise getting out your boards a little wide, and sticking them up until thoroughly seasoned, as I have mentioned before. Cut your stuff in two in the middle, so that you can handle it readily, and then, with the hand ripper, rip the boards ¼ inch wider than you need, and cut them up to the exact length. When this is done, and your boards are all piled up square and true as before, you are ready to split them through the middle. It is not necessary that the boards be planed on more than one side, for the back side of all of them is next the chaff, and as the rough surface would tend to impede the circulation of currents of air, I do not know but that I would rather have them unplaned. Neither is it important to have the boards split exactly in the middle; in fact, one end I had in view, while inventing this chaff hive, was to avoid the necessity of having to be so exact, as we must be with hives where both inside and outside are exposed to view. You see as we go along, that while the inside dimensions of the hive are to "a dot," the boards constituting it may be of all sorts of thicknesses, and lengths too, or at least a part of them, for nearly all the joints are lap joints. As before remarked, it is very important that the back and front of the hive, are at the right distance apart, and this proper distance is 18½ inches; to insure this every time, we make the side boards, with a shoulder as shown below.



ONE OF THE SIDES OF THE INSIDE OF THE CHAFF HIVE.

It will be observed that four of these boards are used, two above, and two below. The width of these boards, when finished, is to be just 9½ inches, by about 19½ long. We will cut the shoulders on the planed sides, of course, because they come inside of the hive. The ends are of unequal length, for the upper story contains a greater number of frames than the lower. The bottom ones are 14¾ in. long, and the upper ones, 20¾ in.; both are 9½ in. wide. In the Simplicity hive, we were obliged to cut a rabbet into the upper edge of the end boards; but with these, we simply nail the tin rabbet directly on their upper edges. The rim before mentioned, forms the back to those in the upper story, and a strip, nailed on to connect the two stories, forms the back to those in the lower story. This inside work is all made of ½ or ⅜ inch stuff. The bottom of the lower story is also made of this samė thin stuff, and in nailing it on, it does not matter, if the boards lap over and project, both at the sides, and ends too. The diagram below, a transverse sectional view of the chaff hive, will, I think, make it all plain.

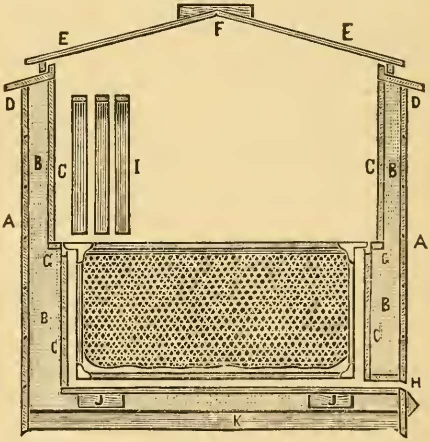
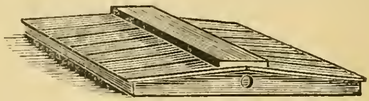
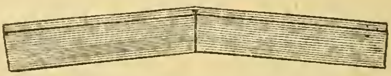


DIAGRAM OF CHAFF HIVE.

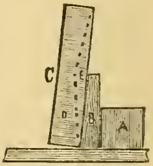
Both the outside and inside are nailed up separately, and then they are put in place, and nailed together, the only points of attachment being the rim which rests on the top edge of the upper story, and the bottom of the lower story, which rests on a couple of strips that are attached to the siding on either side, and to which the bottom is nailed. Let A A represent the siding, B B B B, the chaff, and C C C C, the light boards that constitute the inner hive. D D is the rim that holds the cover, and E E, the cover itself. F is the ridge board, that holds the siding of which the cover is made. G G are strips about 1¼ inches square, that support the upper story, and attach it securely to the lower one. The shelf or ledge, formed by making the upper story broader than the lower one, is exactly on a level with the top bar of the lower frames, and therefore the upper tier of frames must hang just ⅜ of an inch from these, to prevent, as much as possible, the building of combs between the two. H is the entrance, which is simply a covered passage way from the inside hive, through the chaff, to the outside. A frame is shown in place in the lower story, and the ends of a couple of them in the upper story, hanging at right angles to those below. J J are two heavy pieces of rough unplaned stuff, that support the bottom of the inside hive. Just below these, is the rough bottom of the hive, which is made of the knotty and shaky pieces that were rejected, when we were getting out the siding. To keep out the dampness of the ground as much as possible, as well as to discourage mice from any attempt to get into the siding, we put a sheet of tarred building paper just under J J, and between them and the rough bottom boards. These rough bottom boards are the last thing put on; when the body of the hive is all finished, it is turned bottom upwards and the chaff filling put in. The chaff may be either wheat or oats; it has been suggested that wheat would be less liable to get damp and settle down so as to be soggy and mould, but we have noticed no such trouble with either kind as yet, and the oats chaff is probably the warmer, because it is softer and more downy, like feathers. The chaff should be packed sufficiently to prevent it from ever settling so as to leave the upper portions of the hive vacant. When the chaff is all nicely filled into the sides, you are to put as much over the bottom as possible and have the tarred paper and rough bottom boards go in, and then the whole is to be securely nailed, both down into the strips J, and through from the siding, into the ends of these bottom boards. Now we are ready for the cover.

To contrive a light cheap cover, that would be absolutely water proof, that would allow of being readily lifted with one hand, and still afford a flat place on the top for setting a case of section boxes, or any other article used in the apiary, caused me more hard study and experiment than all the rest of the chaff hive together. There are a great many different pieces to the chaff hive, it is true, but these pieces are all made of cheap lumber, and one kind of pieces is made to answer a great variety of different purposes. For instance, the roof boards of the cover are all sorted out of the same siding that is used for the body of the hive. Before piling this siding away, you are to select all of the straightest and soundest pieces for these covers. For the sake of lightness, we will plane these down to ⅜, or a little less. Where we get hold of very thick stuff among our pile of culls, we can often make 3 roof boards of a piece, thus saving lumber, and time in dressing it down. Now these boards or strips are to be bent in the middle, to get the slope to the roof; and, to do this, we will make a broad saw cut nearly through each of them, as shown below.


COVER TO CHAFF HIVE.

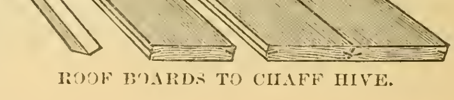

ROOF BOARD TO CHAFF HIVE.

Make the cut so nearly through, that the board will bend along the line, without trouble. To keep them bent just right, and to make a solid ridge board with the flat place on top, we will get out a piece of ⅞ stuff, 22½ inches long, and 5 inches wide. Fix a beveled piece against the parallel bar on your saw table, so that you can cut out this board thus:



Let A represent the parallel bar, B, the beveled piece screwed to it, C, the ridge board we are making, and D, the dotted lines where we wish to have the saw cut. After going through on one side, the board is to be turned over, so that the piece, E, is taken entirely out at the second cut.

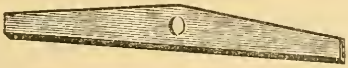
That the siding may make a close joint that will not leak, we groove the edges, and push into them a little trough shaped piece of tin, as shown below.


ROOF BOARDS TO CHAFF HIVE.

These cuts in the siding are made with a very thin saw, and in such a way as to be least liable to break out. The tin allows the thin pieces of pine to shrink and swell without any danger of checking, and yet no water can, by any possibility, get into the inside of the hive. The tins may be made of the cheap roofing tin, or of scraps that tinsmiths would otherwise throw away. If they should fit so loosely, that there may be danger of their falling out, a slight bend in them will make them stick securely.

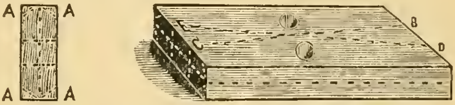
As the rim that holds the cover is on a bevel, we wish the strip that goes under the eaves, as well as the gable end piece with the ventilating hole in it, to be beveled at their lower edges also; the former we make of thick pieces of siding, by splitting them in two on the proper bevel. As these are to hold the nails along the eaves, they should be at least ⅝ thick. For the gable ends, we adopt a little different line of management, and, as the principle is a very important one, I will take a little space to explain it.

Much time is occupied in handling all these little bits of lumber, and to employ a strong man to handle little bits of pine, and turn them end for end, when he could, without fatigue, handle a dozen or a hundred just as well, is something that should be avoided as much as possible. The same idea was brought out very strongly in making section boxes; but to make irregular forms is a little more difficult. Even if we can accomplish no more than to have two of the pieces attached, so that the workman can perform two operations on them, while the stuff is right in his hands, it is quite a saving. This gable end piece, you see below.



GABLE END TO CHAFF HIVE COVER.

You will notice, that each piece has a tapering cut at each end; that it has a bevel at the lower edge; and that it has a hole bored through it. To pick it up and lay it down for each of the four operations, especially, if you are one of the awkward kind that have to turn around and stoop over every time they lay a piece down and pick another up, requires a good deal of time. If we should take a piece of 3 inch plank, we could cut the tapers, and bore the holes, in at least *six* pieces at once, for they need not be over ⅜, and then we could saw off the pieces after all was done. But 3 inch plank is pretty expensive, because there is so little demand for it. If we can buy 2 inch plank at a low figure, it may do to use this, but, even if we do, after boring the holes and cutting the tapers, we would better cut them in two in the middle first, so as to have about inch pieces, as you will see. Very likely, it will be best to use your culls, so we will get out a piece of inch stuff planed a thick as it will work, 5 inches wide, by 22½ long. This piece will make 4 gable ends, by running your saw through the dotted lines, as shown below.



HOW TO MAKE THE GABLE ENDS.

First we take off the corners, A A; then bore the holes; next we cut from B to C and from D to E; lastly, split them through the middle, and they are finished all but planing. The ventilating hole should be about 1½ inches in diameter, and should be covered with wire cloth, on the inside. It is never safe to omit these; for a strong colony will exhale so much moisture from the breath of the bees, as to cause drops of water to hang on the roof boards, and large icicles to form in the winter. I have wintered bees in the chaff hives, without the ventilating holes, but was obliged to open them occasionally during very severe weather, to let the roof and cushions dry out.

I am *greatly* disappointed in "Directions for Making Hives"; you had promised to give directions in the May number; imagine my disappointment on opening the paper, to find that, if I made a hive according to your instructions, I must pay $150 for a two horse power engine, and about as much more for saws, planers, and other "fixins," before I could make a hive. I expected that your instructions would inform me how to make a hive with hand saw, jack plane, and pruning knife. Not 10 in 100 of your 3,000 subscribers are benefited by the instructions in this No. Can you not tell me how to do it, without paying out so much money to get ready? or do you expect every man that keeps bees to buy his hives from you, and a few others, that "are getting so much money from the people that you don't know what to do with it"?

Please tell us how to do it, or place me in the "Growler Corner". Success to GLEANINGS notwithstanding. J. G. RICE.

Peosta, Iowa, May 16th, 1878.

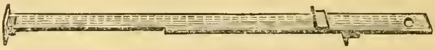
I think you do mistake, my friend, but for all that, I thank you for reminding me that it is but a little while, since I made all my hives by hand, and wanted just such instruction as you ask for. Let us go over it again, briefly.

You *can* make your hives of lumber that is not planed at all, but as this is necessarily of all kinds of thicknesses, I can hardly think you, or any one else, could *afford* such hives. If we plane it, it should be planed to an exact thickness; and as this is almost an impossibility by hand, I think we would better take it to a planing mill. Even should you conclude to plane your stuff by hand, these same directions will apply all the same. Our Chaff hives were all planed by hand, every part of them, until but a few months ago. With a hand saw and square, you can cut up the lumber very well, but if your time is valuable, and you have 25 colonies of bees and a prospect of more, you will most assuredly save money by having some kind of a foot power circular saw. On this account, all the directions for making the Simplicity hive were specially adapted to the foot power saw. To be sure that I was in error no where, I stood over one of the workmen, while he made a complete hive, with the saw we use. If you really desire to make a hive with a hand saw and plane etc., you are to cut your stuff up, just as I directed. Straighten one edge with a jack plane, in the good old way; (beg pardon, if this sounds sarcastic, I tried not to have it) then with a gauge mark out the width of your boards, saw them out with a hand rip saw, and plane down to the line. When this is done, with a plane and bevel square, dress off one corner, until you have the desired bevel for the bottom edge of the boards. The rim to go around under the cover can be dressed out in the same way. The shoulder that we made on the top edge, to exclude wind and rain, can be cut very nicely after the hive is nailed up, with a plane bit ground on a grindstone until it will cut the desired shape. You can do it, and you can make nice work, but it will pay you just about as well as it will to mow a 40 acre field with a scythe, when you can get your neighbor's mowing machine for a trifle, to do the whole quickly and nicely.

FRAMES FOR HIVES.

The frames to fit the hives I have described, are 17⅝ by 9⅛. I took these dimensions from a frame Mr. L. sent me several years ago, in answer to an application to him for a frame of the dimensions he would prefer. Although some of the frames in common use, called the L. frame, differ somewhat from these dimensions, yet the frame will fit the greater number of hives in common use, known as the L. hive. There is some difference of opinion in regard to the comparative merits of frames with metal supporting arms, and those having the top bar prolonged, at each end, so as to form a support. I decidedly prefer those with the metal bearing, as being more easily handled, even at the risk of having them slip about once in a while, when we do not want them to. I want a frame so "movable," that it can be picked up at any time, with one hand even, in spite of all the propolis the bees can fasten to its attachments to the body of the hive. The all wood frames have considerably the advantage in cheapness, and they can be got up on short notice, with very little machinery.

It is a very important thing to have all our frames, as well as our hives, exact in size, and to insure this, we have gauges made for each separate part. We formerly used wooden gauges, but after long use, we find there is danger of inaccuracy from the shrinking and swelling by changes of weather, or loosening of joints by use, and we have, therefore, decided on steel gauges, which we make of a cheap carpenters' square, such as are to be had at almost any hardware store. The stops are made of brass, and are put on with rivets, as there is always more danger of a solder joint giving way, than of a riveted one. The drawing below will, I think, make it all plain.

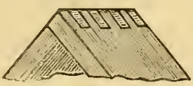


GAUGE FOR FRAME MAKING.

The plate on the end is put on that end of the square that reads one inch, thus enabling us to read the dimensions in inches, at the same time that we are trying a piece of board to see if the length is right. One side of the square gauges the top bar, and the other side, the bottom bar. The notch in the side gives the length of the end bars. For frames, we use box lumber that costs about $20. per M. A cheaper quality would answer, and we might work cull lumber to quite an advantage, were it not that there would be great danger of bad pieces getting in, and we really need the very best straight grained pine for our frames, both brood and section, that we can get. For the metal corners, the lumber is to be planed just ⅞ of an inch; after trying frames with the bars of almost all widths, I think I would prefer this to any other width. Square the end of your board with the cut off bar, and then set the parallel bar at such a distance, that the pieces cut off will be of such length, as to just push in between the stops on your gauge. Do not say, when you have it nearly right, "that is near enough", but have it just as nice a fit as it can be; then you can go on cutting up your boards, without any fear of inaccuracy. For metal cornered frames, you have only to cut off two lengths:

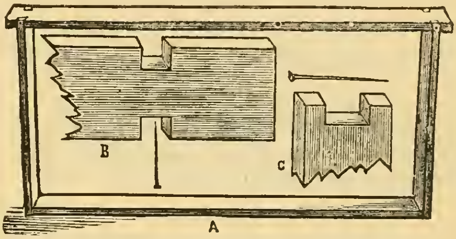
the longest for tops and bottoms, and the shortest for ends. If you are making the all wood frames, the top bars are to be 1½ inches longer than the bottom bar. This allows a projection of ¾ of an inch, for the frames to hang on. This I think as great a length as we ever need, and I do not think it advisable to try to get along with anything less, if we wish to avoid the effects of propolis in bee hive manipulations. A bee can pass freely through an opening of ¼ of an inch, but if it is much less, he is disposed to bridge it across with propolis ; if it is much greater, combs will be built in the space. For these reasons, comb frames are usually separated from the sides of the hive, about ⅜ of an inch. Well, if we do not want the bees to fill up the rabbet with propolis, we must have a channel for them to walk in, about this width, and ⅜ outside of the rabbet, added to the ⅜ inside, gives us just ¾ for the projecting arm.

I would put the frames together, at the corners, with the grooving saws, such as we use for section boxes. In the ⅞ stuff, I would have four grooves and four tennons, as shown below.

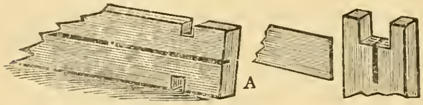


This work is very rapidly done with four saws having collars between them, to separate them just the right distance. The boards, when cut up into lengths, are then run over them, being held at the right depth by gauging the height of the saw table. Where the four saws are not at hand, this grooving may be done, but of course not as rapidly, with a single saw cutting one groove at a time. To get the distance just right, a blade, or track, is set in the table, by the side of the saw, just large enough for the grooves to slide over. The first groove is cut, by running your boards against the side of the track, as a gauge, and the next, by running the groove on the track, and so on. This method is more liable to inaccuracy than that with the four saws, yet very nice work can be done by means of it, and we are not limited to any size of stuff, or material. Section boxes, or boxes for a variety of purposes, may be made with this kind of dove tailed corners, with great facility. Great care should be used, to have the stuff held closely down to the table, that it may be all grooved to the full depth. An ordinary saw, with the teeth set very wide, will answer for this grooving, but a thick saw made on purpose, ground thinner in the centre, so that it may be sure to clear well, is much better. Cutter heads will do for a small amount of work, but having only two teeth instead of many like a saw, they are so quickly dull, that I would much prefer the saw. For the metal cornered frames, would have all the corners made as above; the grooving in the top of the ends is to be made a little deeper, to accommodate the extra thickness of the top bar. The top bars, we rip off 5-16, the ends and bottom bar, 7-32. The bottom bars would do just as well ⅛, were it not that heavy combs are sometimes made to rest on them, as in transferring, etc.

Where the frames are made all of wood, I would make them as in the cut below.



If they are made so as to drive together just right, it gives a very stiff frame, and but a single nail is required to fasten the corner. Care should be taken that the neck on the ends of the top bar is not cut too deep, else the projection may be in danger of breaking off, at the narrow point. The neck should be so made, as to have about 7-16 of the wood left: this will allow the mortices to be just 7-32 deep, and the same in width. We make these with a cutter head, before the boards are cut up. The tool should be nicely ground, that the groove may be smooth and sharp, with no ragged edges or anything rough about it. The mortice in the ends of the top bars, we make by placing the four grooving saws close together, the washers being left on the outsides. Cutting in the end of the wood is rather trying work, for both saws and cutterheads, and they will need sharpening often. Great care should be taken, to have all these joints just right, for the strength and beauty of the frame depends on having them driven up as tightly as may be, without splitting the wood. The comb guide, for both kinds of frames, we make of nice straight grained pine, 9-16 wide, and just thick enough to fill closely the groove cut by one of these grooving saws. This is a little less than ⅛ of an inch ; for you will remember that four grooves and four tennons make just ⅞ of an inch. The groove is to be exactly in the centre, and ¾ deep, and is, of course, made in the end of the board before the pieces are ripped off. The top bar is also to be grooved on the under side, its whole length. Below we show you a section of both top and end bar, with the groove to hold the comb guide.



As the comb guide is 9-16, and the cut in the end bar ¾, we have 3-16 left for whole wood in the top bar, as at A, and the table should be so set, as to leave just this amount of wood uncut.

Even if the fdn. is fastened in the frames with melted wax, as many do, I would have such a comb guide, because it adds so much to the strength of the frame, and obviates the necessity of having a very heavy top bar. The bees will, in time, build their combs right over such a comb guide, and use the cells above the brood for honey.

HOW MANY FRAMES IN A HIVE.

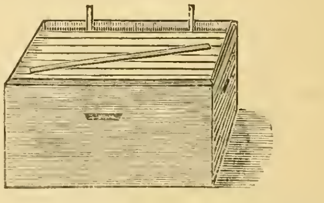
You will remember that the width of the Simplicity hive inside, as well as the lower story of the Chaff hive, is just 14¼ inches. Well, this space is just right for ten frames, bringing them a trifle less than 1½ inches from each other, from centre to centre. After we have our frames placed in the hive, and spaced with the eye and fingers, so as to have about the same amount of room for each frame, we are to consider what is to be used to keep the bees down on the frames, and to prevent them from building their combs clear up against the cover, and fastening the latter down with propolis. Mr. Langstroth used a thin board, and called it a honey board; but as this is almost sure to kill bees, especially when covered with little bits of comb, I very much prefer some kind of cloth, that the bees will not eat through, or cover much with propolis. The common black enameled cloth, such as carriage makers use, seems to answer the purpose the best of anything yet tried.

(*See page* 73.)

HOW TO USE THE BROAD FRAMES OF SECTION BOXES.

For the one story hives, you have nothing to do, but to just hang the frame of sections in the hive. The separators, of course, will be turned toward the brood, and this will serve to keep the bees from putting pollen in the section combs, as well as to keep the queen out. I have never seen any pollen, or any eggs, carried into a frame of sections, where separators were used.

Although you can get nice honey from a one story hive, I would not, as a general thing, recommend them; because almost any swarm of bees will very soon need more room, and if it is not furnished, they will be pretty sure either to swarm or to lie idle, for want of it. With the extractor, we can get along very well with one story, for we can extract the honey; but we cannot wel take off the sections, until they are capped over, and when the two frames are full and ready to cap, the bees will have little or nothing to do. This is why I would have a two story hive. If you have the upper story filled with sections, I do not know that there is any particular advantage in having any sections in the lower story at all; for, after the bees once get to working well above, they will, as a general thing, rather neglect the lower ones. Different colonies work differently in this respect, but side storing, unless in hives with taller frames than the L., has been pretty generally abandoned. You will remember that the Simplicity hive is 14¼ inches wide, and that the broad frames to hold the sections are 2 inches wide; therefore 7 of the latter, would fill the hive into about ¼ of an inch. Well, as we wish the tin separators to lie as flat and smooth as possible, we will wedge up in this ¼ inch, to bring the seven frames as closely together as possible, and then, when the wedges are removed, we can get out the first frame of sections without any trouble. As the tops of these frames are tight together, we shall have no occasion to use the sheet of enameled cloth, and this may be laid away until the season of surplus is over. It is true, the bees will get above through this ¼ inch space where our wedges are put, but we will stop this by a thin slip of wood, similar to our comb guides, only a little longer. Only two wedges are required to hold the broad frames tight up to each other, and these are towards the middle, just opposite the uprights of the section boxes, between the separators and the sides of the hive. The diagram below will illustrate it.



HOW TO WEDGE UP THE FRAMES OF SECTIONS.

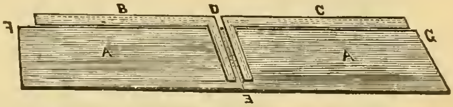
A and B are the wedges. When they are withdrawn, you can pry over and lift out the frame, almost as easily as any brood frame, and the operation of taking out the honey is a very easy, and a very simple one indeed. At first thought, it seems a little singular, that the sections are much easier to take out when filled than when empty; but such is, nevertheless, the case; for they are then rigid, solid blocks, instead of the frail structures which were put in.

PAINTING THE HIVES.

After the hive is nailed, the nail heads should all be set in slightly with a suitable nail set, and then I would advise going over the corners and all rough places, with a keen and sharp smooth plane, set so as to cut a very light shaving. After this, rub off all rough places with some sand paper and a block, and you are ready to give it a priming. This priming may be simply boiled linseed oil, or boiled oil and ochre, or something of that sort. Cheap red paint is said to hold better than any other color, but, for the sake of avoiding the consequences of excessive heat, I would avoid all dark colors, even for a priming; for somebody might be careless, and let the paint wear off until the priming showed through, and then, if the heat of the sun should strike right on the hive, the little fellows might be made very uncomfortable, to say the least. I once had a brown hive which got so hot that it melted the combs, and let the honey run out in front. I painted it over white, and had no farther trouble, although I allowed it to remain in the sun as before. I once was quite a friend to a kind of chemical paint, but, since having a larger experience, and testing pure white lead by the side of other kinds of paint, I have come to the conclusion that the pure lead and linseed oil is much the nicest and most durable, besides being, probably, as cheap, in the long run, as anything else. Instead of putting on a great many coats of paint to commence with, I would paint lightly at first, and then give them another coat, as often as it will improve their looks or durability. Do not go by fits and starts, in fixing up your apiary, but keep fixing all the time, and keep it *nice* all the time. Perhaps the better way to paint and fix up is to lift the combs out, and set them into a hive all rigged and painted, and then, after that one is fixed, carry it to the next, and so on. This plan is very convenient where the hives need a nail or two, which could not well be put in while it contained bees. I do not think fresh paint is especially offensive to bees, nor do I think new swarms are often driven off by the smell of paint, but I should prefer to have the hives dry, before the bees are put in. I have often painted hives containing bees, without perceiving any bad results, except that the bees sometimes stick fast to the newly painted surface, which is certainly annoying to the poor little fellows, if nothing more.

CONCLUDING REMARKS ABOUT HIVES.

Work carefully, and avoid mistakes and blunders by carefully measuring, trying, and testing every thing, as you go along. Do not get a lot of hives nailed up, and then discover that the frames will not go in them properly, but have a frame right at hand, and, before you drive a nail, put the frame in place and see if it is right. More than this, be sure that your *frame* is just right. Many bad blunders have resulted from picking up a frame *supposed* to be right, but which was found to be a little too large, or too small, in some of its dimensions, after a lot of hives were made to match it. Have a good steel square, and keep it carefully, that it may not get out of true, or get rusty or injured in any way. To test its exactness, lay it on a broad straight edged board, and draw a fine line along the blade of the square, with a keen pointed knife; then reverse it, and see if the knife point runs in the same track. The drawing below will show you how.

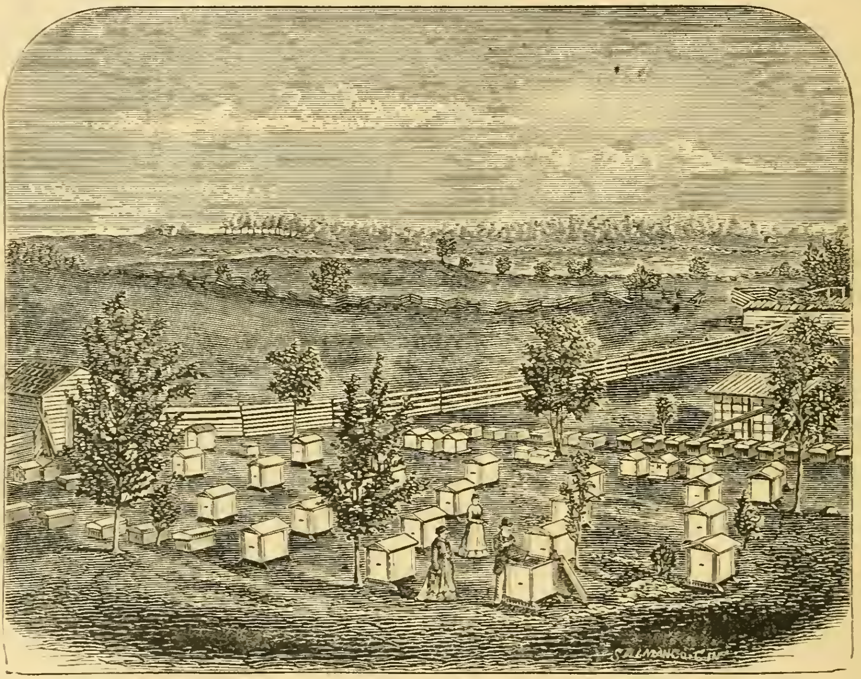


HOW TO TEST A SQUARE.

Let A A represent the board with the straight edge. Do not say, "This edge is straight enough," until you have made it as exact as you can. Lay the square on as at B, and draw the line D E, with your knife point; now turn it over as at C, and draw a line in the same place, or so near it, that you can readily see if the two are exactly parallel. You can take your board to the hardware store, and pick out a square that is right, or you can get the one that is nearest right, and then make it right by filing. When you get a square that you know you can put "your trust in", go ahead, but work carefully. Say over and over to yourself, when starting out, "suppose I should find after I get these done, that they are all wrong"; and so measure and try your work, at every step. It is just as easy to cut boards in the right place, as it is to cut them in the wrong one; and it is just as easy to have all the different parts of your work nice and accurate, as it is to waste your time by careless bungling, and then trying to patch up the consequences of your own awkwardness. I know, for I have made a great many awkward mistakes in my life, and I also know, by experience, that one so awkward and careless that he, at times, almost feels as if there was no use of trying to be a mechanic, or hardly anything else, for that matter, *can* learn to be careful, and to do nice work. I also know the thrill of pleasure that rewards one, after he has successfully fought these besetting sins, and come out triumphant. Once more, be careful; work slowly, until you know your work is all right; have your tools all nice and sharp; keep everything piled up in neat order; look pleasant, *be* pleasant, and thank God every day for being a great deal kinder to you than you deserve.

TOWNLEY'S APIARY.

MY friends, I take great pleasure in introducing to you our friend Townly, not only because I think you would like to know him, but because he has been so instrumental in bringing the idea of chaff packing on the summer stands, before the people. I was so prejudiced against all kinds of out door packing, that had it not been for his vehemently insisting that I should give it a trial (see page 133, Vol. III.), I might yet be fussing with small colonies and spring dwindling. At my first meeting with him, he introduced himself as "chaff," and although he is not going to speak of chaff particularly to-day, we will just peep over the fence and listen, while he entertains a neighbor, who it seems has just dropped in to see the "bee yard."



THE APIARY OF J. H. TOWNLEY, TOMPKINS, JACKSON CO., MICH.

"Come right up here, Mrs. Johnson; you need not be afraid of the bees; they are Italians, and if they are kindly treated they will not sting, and can be handled almost as easily as so many flies. This hive is a two story, chaff packed, summer and winter hive. It is the invention of Mr. A. I. Root, of Medina, Ohio. He publishes a bee paper there, called GLEANINGS, and through it has given us many useful and valuable implements for the apiary, among which we consider this one of his best. There are now two colonies of bees in it. This smaller hive, sitting inside of the upper story, will be set out during the summer, directly in front of the entrance in the centre of this end. The lower hive is the same size, and will remain there summer and winter, as will also the large inside case around the upper hive, with the space between them and the outside case packed with chaff. The entrance to the lower hive is at the bottom, in the opposite end. The frames used above, filled with comb, are intended for extracted honey, and are the same as those used below. They are turned half way around so as to cross the lower ones at right angles. The upper story can be filled with frames of sections, or with boxes as we prefer.

"These large, house hives are arranged nearly as we intend to have them all arranged, as fast as we can make the hives.

"O yes; their being so far apart will make some extra travel, but we like them best that way; they not only look better, but they afford us *plenty of room* to go among them; we have always lived in the country, and never liked to be crowded even by our neighbors. Again, you notice that row of wintering boxes, with bees in them, on the north side of the yard. They are from three to six feet apart, from centre to centre. The entrance to every other one is reversed, part of them fronting south, and part fronting north; and yet the bees are constantly trying to enter this end of them all. There are no bees in the first large hive, in front of the shop door, and none in any hive within eight feet from it, but you see 'lots' of bees flying around and lighting near the centre of the south end of it, showing that they belong in a similar hive. They are heavily laden with pollen too, showing that they are old bees and should have their location well marked. If there were bees in that hive, with an entrance to correspond with the other, the strange bees would go in there and might be destroyed. A young queen would be certain to be lost, and if, by placing the hives so far apart, we can save but one or two queens in a season, it will pay for the extra labor.

"No, we do not consider shade essential. It is true, we like to see some shade in a bee yard, but we have kept bees both in the shade and in the sun, for more than twenty years, and, except in the case of young swarms with new combs, if it is any advantage to have them shaded, either for box or extracted honey, or to prevent swarming, we have yet to learn it.

"Yes; it *would* save some steps, if the shop was near the centre of the yard, but it is an advantage too, to be able to see over the whole yard, from any part of it; to see just when and where swarms are issuing; and we think the one will just about offset the other.

"No; there are no bees in the pile of hives under the shed. They were used for upper stories last year, and are merely piled up there for future use.

"Sorry you must go so soon; come again, when the trees are in leaf, and when we have "housens" for all our bees. We think the yard will be in better shape, and look much neater than it does now. Good day." J. H. TOWNLEY.

Heads of Grain,

From Different Fields.

DOLLAR QUEENS IN MAY.

I HAVE shipped you, to-day, fifteen "dollar queens," by American express. I left the charge, which the agent said would not exceed 75c, for you to pay. If the queens are all dead, send your bill to me. I feel quite anxious about them, as I am a novice at candy making, and the weather has turned quite cool since I shipped them, this A. M. I think $1.00 a low price for a good queen; it requires no small amount of care and labor to be absolutely sure that each one is all right and thoroughbred. If I have usual success, I will send you more shortly, and I hope all will give entire satisfaction, to yourself and your customers.

E. M. HAYHURST.

Kansas City, Mo., May 9th, 1878.

Well, friend Hayhurst, if you are a new hand, I do not know what you will do when you get to be old. The queens came to hand, every one alive, and what is more, every *bee* was alive too. The queens were of a beautiful orange color, and the bees were downy and three banded ones, and so quiet, one might think, from their behavior, it was no unusual thing at all for them to be carted about the country shut up in a little cage. The candy cages were in two long strips, perfect models of the cages we have described, but if anything, a little better made. I think they were cheap at $1.50, the price we sold them for. If this looks like advertising for friend H., the only excuse I can offer, is that he deserves it. If you can do as well, I will advertise you, too.

DRONES FROM VIRGIN QUEENS.

In answer to your question, on page 165, May No. of GLEANINGS, about the value of drones hatched from drone laying queens, for impregnating queens, I will say that, at our Feb. meeting, our President, Mr. J. T Mardis, of Lebanon, O., gave us his experience as follows:—

One spring, he had a pure Italian queen which proved to be a drone layer. He thought it would be a good plan, to start several nuclei, which he did, and have their queens fertilized, before the black drones were out. To his surprise and disappointment, not one of his queens became fertile from the drone progeny of his unfertilized Italian queen; but, in this case, if 99 report failures and only one a success, of course, we will all have to admit that the thing can be done. It is like the question of fertilization in confinement.

W. S. BOYD.

Hamilton, O., May 15th, 1878.

ADVERTISING ETC.

Your advertising rates seem to be "upward and onward," like the course of the erratic genius at the head of your establishment.

J. P. H. BROWN.

Augusta, Ga., May 8, 1878.

Thank you, Dr., for your doubtful compliment. In regard to the advertising, there have been complaints, every time we have advanced a "notch;" but, my friends, if it was worth 10c per line, when GLEANINGS had less than 1,000 readers, is it not surely worth a little more now? I do not wish GLEANINGS to be filled with advertisements of all sorts of trash, and I think you all agree with me. I wish it to contain only advertisements of good, substantial men; men whom we know to be sound in every respect. To secure this, the price must not be too low. For every 1,000 *bona fide* subscribers, I have decided to charge 10c per line. For the 1,000 or more sample copies that are given away every month, at a considerable expense, I charge nothing. I pray that not only GLEANINGS, but all of its readers, may continue to go onward and upward, in the straight and narrow path.

TRANSFERRING AND THICK COMBS FOR EXTRACTING.

I have transferred ten swarms lately, from Nationals to Simplicities. For the benefit of those who wish to transfer from one frame hive to another, I give the "modus operandi." Smoke the bees pretty thoroughly in the old hive, then take *all* the combs from them, leaving the bees only in the hive on the old stand. Take your combs to some suitable building, cut them out of the old frames, and fit them into new ones, fastening with clamps made of ⅛ square pine sticks, or in any other way you may prefer, only fasten them. Put them in the new hive, keeping the brood together as much as possible, put on your sheet, quilt, and caps, place the hive on a bottom and carry to the old stand. Remove the old hive, and set the new one in its place. Spread down a sheet as for hiving a swarm, open the old hive carefully, get a few handfuls of bees in a dipper, and pour down in front, and as soon as they set up the hiving buzz, shake them all on the sheet, and they will go in. I, at first, put on an upper story and poured the bees into that; but I found it the better plan, by far, to hive them, for reasons any one can see by trying the two plans.

A good frame for extractor may be made by bradding two all wood frames together, with a sheet of fdn. between them.

R. L. JOINER.

Wyoming, Wis., May 11th, 1878.

Thanks, friend J., but I believe your concluding remark is the most important thing you have told us, for some time. I know the bees will use such thick combs, and if we can, by spreading, get the cells so deep that the queen cannot use them, there is nothing to hinder our using drone comb fdn. Just think of getting a gallon of honey from a single comb. There is a honey comb in our show case, that would hold more than a gallon, were it the size of an L. frame.

One week ago to-day, I sent $2.00 to you for queens to be sent to this place. None have come yet. I hope the $2.00 are not lost. Everybody wants my smoker which you sent. I could sell many. Suppose you send 25 C. O. D.; or if you can send by freight much cheaper, I will pay on delivery here. Sell them just as cheap as you can, if you have to send 50. I have made 2 trips of 20 miles each for my queens from you (Sat. and to-day); will wait now a day. I keep making people promise to send for GLEANINGS, will soon take it myself.

Fenton, Ky., May 13th, 1878. A. W. BRYAN.

The above illustrates many of the troubles that come about in business matters. Our friend dated his order for the queens at Hopkinsville, Ky., which was not his home, and neglected to tell us of it, so the postal card we sent at once, he never got. He has neglected to subscribe for GLEANINGS, which would have informed him, all along, that queens could not be furnished for a dollar in the month of May, and yet his two journies of 20 miles each would doubtless have paid for it for several years. Do not take a journey to the express office for your things, until you have had some intimation by mail, that your order is filled; for it is almost one of the impossibilities, to send all kinds of goods right back, in response to an order. I thank him for his kind words in regard to the smoker; it looks now, as if we should soon need a factory to supply them alone, to say nothing of other goods.

I have 500 lbs. of *very nice*, golden red, ext'd honey, which I will sell for 10c per lb. G. M. DALE.

Border Plains, Iowa, April 12th, 1878.

Will you please explain of what blood a queen raised from a hybrid stock is, when she is fertilized by an Italian drone?

I have had six swarms up to date; three in April; all Italians. I have native bees, but no swarms from them yet. WM. ST. MARTZ.

Moonshine, Ills., May 9th, 1878.

I should call her bees ¾ Italian, and you will find such bees are often the very best of honey gatherers. It is sometimes hard to tell them by the markings, from pure Italians, but they are, usually, much harder to handle.

When I wrote to you before, you said, "Tell me more about that swarm you got for logging, and its increase." Well, they were rather weak in the spring, and I transferred them into the L. frames. I concluded you knew best about the frames, so I changed. They swarmed July 1st.

I sent to H. Alley for a queen; she was dead when received. I sent back a card to that effect, and he sent me another, which arrived safely. I had destroyed the queen cells in the parent swarm, and she was accepted by them July 23d. I like her progeny very much.

They are very lively workers. An old bee hunter followed them about five miles, to see where such funny bees lived or were owned. They are the only yellow bees in this township. So you see I have two swarms. They are packed around with cut straw and chaff, in a good box. Father says, he never knew bees to gather pollen in Dec. before. The black ones don't bring any. If I keep bees, I intend to keep Italians. OTIS F. BOWEN.

Randolph, Catt. Co., New York, Dec. 25th, 1877.

EXTRACTED VERSUS COMB HONEY.

We have to raise some honey in section boxes, for customers; but, for our own accommodation,—our own table use, baking, and easy holding over winter, —we prefer the 400 lbs. barrel of extracted honey, collected from white clover and linden blossoms, and well ripened by the bees before being extracted. This is the most splendid food for an old soldier, who had to undergo so many privations on long marches and charges, during the late war of our own national unpleasantness, and who came home from the battle field without his right arm. Certainly, I am the one who appreciates this most splendid food, and give God the credit for all success, the same as you do, according to your words on page 11, Jan. number. CONRAD DIPPEL.

Watertown, Wis., Jan. 21st, 1878.

Your smoker came to hand all right, and does its work "tip top." I would not take $5.00 for it, if I could not get another. I should like a few seeds of those big Russian sunflowers, if you think they will not capture all the Egyptians in these parts. Let me try them anyway. O. GRIMSHAW.

Ashley, Ills., May 7, '78.

I have 11 stands of bees which I brought through the winter successfully. I have had 12 swarms from them this season; 8 first and 4 second. I had 2 on the 10th of April. By the aid of the A B C, I have saved them all, while the most of my neighbor's swarms, (like friend Joiner's) have "Gone West." The white wood or tulip and white clover are in bloom, and bees are making honey rapidly.

M. A. HUFFAKER.

Riverdale, Tenn., May 1st, 1878.

You will please send me a specimen number of GLEANINGS. Bees are gathering honey rapidly from the poplar. The honey extractor I got of you last season is not tall enough above the frame; the honey flies over the top like fine cobwebs, making one's clothes sticky. Also, the handle is in the way very often, but this is not a serious objection. Bee-keeping is looking up in this county, this spring.

May 4th, 1878. E. R. KING.

Now, my friend, as there was no sign of any address, of any kind, on your postal, how in the world are we to answer you? As you ask for a specimen copy, you are probably not a subscriber, and so I do not know how we are to get at you at all. We might do as I heard of a minister's doing because his flock would not come on rainy Sabbaths; abuse those who did come, for the faults of the others. In regard to the extractor, I can scarcely think honey is thrown over the can, if the machine is the proper size for the frames. Where the size of the frame is not given, or is only partly given, we have many times no choice but to get at it, as best we can; and, in such cases, there is sometimes trouble of the kind mentioned. Notwithstanding this, I can not think it best to make all machines so large as to take any sized frame, as some extractor makers do, any more than I would think of requiring all to wear boots and shoes of one size.

Perhaps, as I live in what is considered the best bee country in the United States, a few words in regard to the prospect for honey may not be amiss. At present, our prospects are very favorable, and we expect a great crop of honey. Bees find honey so plenty now that they will not touch it when left around in dishes; they would rather go to the flowers for it. I have some working pretty lively in section boxes, at the present time; and this, notwithstanding last season was the poorest ever known, as we made no honey, and one-half of the stocks died of want; in fact, bee men here were a community of "Blasted Hopes."

I keep 130 stands, and expect, this year, to average 100 lbs. of comb honey to the stand. We do not extract. If you have any good ideas in regard to inducing bees to store in section boxes, anything to make them do the most work there possible, I wish you would put it in your May No., if possible, or in June. Our great yield of honey comes then, and the comb is as white as milk, and the honey as clear as water. It does not candy.

We have some big stories of great honey yields here in good seasons; one gentleman told me he took 18 section boxes, weighing 15 lbs. each, of comb honey, from one hive in a season; and I think he told the truth. If you wish any items of the country, I will write again. WM. MCCAIN.

Bernardo, Cal., April 2d, 1878.

FEEDING CANDY IN FRAMES.

I have 3 swarms of black bees. I bought them in July last, transferred them from old box hives into movable frame hives, and they had to make all their combs, and winter stores, after that time. They did pretty well; but, when I fixed them up for winter, I filled a frame, for each hive, with candy made according to your directions. It was as hard and white as marble, yet, in a very little while, it all melted and slid down in a heap in the bottom of the hives. We had a great deal of rain, and damp foggy weather, all the fore part of the winter. I gathered up the candy, heated it again (over hot water so it would not burn), filled the frames anew, and put them in. In a week or two, they were down in the bottom again. I have wintered on summer stands, packed in chaff. We have had a warm open winter, and no snow. WARREN HORTON.

Waupaca, Wis., Feb. 28th, 1878.

The trouble is, without doubt, that your candy was not boiled enough. I have never had any such trouble, but have had a similar complaint from one lot we sent away. It seems there is a difficulty in getting the candy just right, for, if it is boiled too much, it is burned, and if not enough, it is liable to melt down as you describe. I think the addition of the flour makes it stronger; that is, it will be less liable to liquefy, even though the weather be damp. Some of our first make was so soft that the syrup leaked from it, but *our* bees took care of it so fast, that it had no chance to fall. It seems, then, there is a disagreeable feature about candy feeding, as well as about feeding liquid food.

I am a young hand in the bee business, but started last season with 2 colonies, rather weak. They did well, and I extracted 5½ gallons of fine honey (618 lbs.) and increased to 5 good colonies.
Friendsville, Tenn. S. L. GREER.

MOVING BEES SHORT DISTANCES.

In Oct., I fed up a weak and late swarm with sugar syrup. They had a young queen of my own raising, with some Italian blood. She is large, but as black as jet. They had no pollen, but I put a chaff cushion on top and put them in the cellar. They ate but little all winter, and when I moved them here, the first of March, not an egg was to be seen, until about the 10th day after moving. They had not a quart of bees, but with a division board and 5 combs, they are doing finely. Writers may say all they can, but give me chaff. Your head is level on chaff. This may throw some light on the length of life of the bee.

I moved here, with my 55 colonies of bees, in the warm days of the first of March, three-fourths of a mile, in a spring wagon. As soon as I set a load down, I opened the hive and jarred it. They buzzed and whizzed around, but marked their new locality. I don't think a single bee went back. By pursuing this course, I think they may be moved any short distance, without loss of bees, but the day must be warm enough for them to fly. M. L. WILLIAMS.
Vanceburg, Ky., April 8th, 1878.

The plan you give, of alarming the bees just before letting them out, after moving them short distances, will sometimes answer, but not always. Perhaps the difference is in the different traits and dispositions exhibited by different colonies.

FILLING COMBS FOR FEEDING.

I have no fault to find with the division boards, nor can I see but that you have give me my money's worth. I could not have had the hives as well built here. The one valuable feature is that everything is made to fit, which can not, or will not, be done by a mechanic who is not a bee man. I have a new patent for feeding bees; $100.00 for farm right. Take the comb baskets you sent, fill nearly full with syrup, set in the combs, and return the filled combs to the hive, and the agony is over. The top of one chaff hive was broken in the transit; the shipment, on the whole, came through in very good shape. I am now ready for "beesness," and will not have to blow somebody up, to get whatever one wants at swarming time. CHAS. J. QUINBY.
White Plains, N. Y., March 9th, 1878.

Friend Q., you see, sent his order to us sometime in the winter, and therefore had all he needed long before they were wanted. We gave him a special discount for the order, when our hands were many of them idle, and you can see how he has been the gainer by it. I am sorry to dispel any of his fond illusions on the feeding arrangement, but about two years ago when my wife and I were on our way to meeting one Sabbath morning, the following might have been overheard :

"Oh Susan ! I have just thought of a feeder that will be ahead of anything ever before invented, and will, I verily believe, work a complete 'revolution in bee culture.' "

"What, and on Sunday? it surely will not work."

"O, but it cannot help working, for it is just to dip the combs into a boiler full of syrup, and then hang them in the hive. I didn't try to invent it on Sunday, it just came of itself."

"Well, you just wait and see."

I did wait and see, although I was almost indignant, because she would not immediately admit its great value to "coming generations." When I tried it Monday morning, I found that the honey or syrup would not get in the cells much better than it would "get out," without an extractor, and so it was abandoned. Friend Quinby's tranquility with all of his supplies ready at hand, contrasts pretty strongly with the friend who writes below, who, it seems, has had some real genuine experience in waiting and watching, although we can now find no trace of an order for fdn. at all.

For lack of the fdn. I ordered, I have had to spend hours killing drones, and hunting up and fitting in odd pieces of worker comb, where I cut out drone comb, (that seems to be the only kind my bees will build now) and I have haunted the express and freight offices till they consider me a nuisance, and call out, "Nothing!" before I get fairly in-doors.
Decatur, Ill., May 6th, '78. L. R. S. ALLEN.

SPOTTED QUEENS AND CANDY CAGES.

I have raised 7 queens from an imported mother, and they all have two small black spots on their backs. I have two other queens raised from a home bred mother, which have no spots, and are yellower than those from the imported mother. Which are the purer? those with the spots, or those without?

I have 8 stands of bees, all Italians; 3 are in the Simplicity hives, and the rest in American hives. I like the Simplicity the best. The frames which you sent for D. G. Hister and myself are at hand, and are satisfactory.

I received the queen cages, but would rather have them larger. I have put six black and hybrid queens in them, and they all died. I am afraid to send queens away in them. I think the candy is too hard. I have one larger size, in which I kept a queen 3 weeks. D. R. KNOLL.
Boundary City, Ind., May 4th, 1878.

Many of the imported, and daughters of the imported queens show these black spots, and they have been called a sign of purity; but I opine that the color of the queens has but little to do with their purity, or value either. If the bees are well marked and good workers, I think that is enough. We, too, have had some trouble with the small cages, this spring, although they worked well last fall. Perhaps the candy has hardened, so that it is not as readily taken by the bees. We have tried moistening it with honey, with good success. A new lot, that will soon be out, will have the candy made of honey, flour, and sugar, and the cage will be made considerably larger; although it is quite a difficult matter to make them much larger, and still retain the price at 5c. We use the 10c cages, for all our imported queens, and I believe we have never had a loss reported, where they were used as yet.

Goods for last order to hand, and all in, except 2 porticoes which I ordered or intended to order; only 3 came. However, let that go for the present, as I see I was mistaken in the price. I have sent you, perhaps, a dozen orders, and nothing has come up wrong yet. Other bee men make mistakes sometimes, but always correct them, unless I except Mitchell, and he will promise every time, but then he has so much business that he forgets it, you know(?). Screw drivers came to hand; were very nice, but had found wife's before they came. Bees are working in earnest on white clover, poplar, &c., which have been flowering for 2 or 3 weeks. We do not have as much clover here as you do north, I suppose from what you all say of it. It seems to be increasing and spreading here. I think the reason, or at least one reason, of its scarcity here is the fact that we have no stock laws, and our hogs and cows eat and trample it down. We know nothing of basswood here, but it grows in Tenn. and other states of the South, where it is known as lynn. We have two kinds of trees here which we call poplar; one has but little sap or white wood on it, while the bulk of the tree is a beautiful yellow wood much prized by the lumbermen. We call that yellow poplar. The other, we call white poplar, because the sap or white wood is very thick. Having but a little yellow wood, it is not valued so much for lumber. Laborers on the farm, who have to cut up the logs or trees which fall during the winter, often encounter what they call a blue poplar. The wood has a bluish color, and is very hard and difficult to cut. When I was a boy I used to dread an old blue poplar. I do not know that we can tell any difference in the trees from the outside appearances. It is a beautiful tree, and makes splendid, but dark honey.

N. C. STEELE.

Kossuth, Alcorn Co., Miss., April 26th, 1878.

EARLY SWARMING.

On the 14th day of April, a large swarm of half Italian bees left the parent stock; a swarm so early as this has never been heard of here, by the oldest inhabitant. R. HIGGINS.

Manchester, Mo., May 3d, 1878.

We have had quite a number of reports of good swarms in April, both this season and the last. Is it altogether on account of the seasons, or are we improving our stock of bees, as well as our bee knowledge?

CHEAP WAY OF MAKING FDN.

I send you my process for making fdn. "for the million." For dipping plates, use plaster of Paris casts, such as are described on page 21, of Vol. IV, of GLEANINGS; only use a sheet of fdn., instead of the metal plates spoken of, to make the casts. Use casts of the size you want the sheets of fdn. Now, instead of fussing with a brush, use your casts just as you do your zinc dipping plates, omitting the soaking, and you have fdn. ready for the bees. I have just made a lot giving 7½ square feet to the lb. Try it and report. E. T. FOGLE.

Hartsville, Ind., May 5th, 1878.

We used substantially the same plan some time ago, but the sheets were not handsome, and there were walls only on one side. The bees accept them, it is true, but I thought they were not built out so rapidly as with the usual kind. Do you not have trouble with the sagging, when the sheets are made so thin as you suggest? Many thanks for your description; it may prove of great value to some. Our experience with the plaster plates was that they did not last very long.

SLATES.

I bought good slates with frames for $1.50 per dozen, cut them up in pieces of 2½x3⅛ in., and had 125. Took one-half day to cut and bore holes; so my outlay, for 125 slates, was 1 1-5 cents each. They are large enough. H. W. Harper & Co., 47 Day St., N. Y., are manufacturers of slates. I have 260 hives in my yard. D. D. PALMER.

Eliza, Ill., April 29th, 1878.

Many thanks, friend Palmer; when we get our "slate factory" running, we will send you a gross for samples. We have been using some very pretty ones, made of slated wood; but they are blown off by the wind too easily, and I have too much fear that they will not be water proof, to offer them for sale as yet. The real slate, I think, will be best and cheapest, and we want a nice quality for marking plainly, and easily. There is one more trouble in our apiary; when we get a hive "fixed," we forget to write on the slate. Cannot some machine be invented that will not allow us to get away from the hive, until we have made the record?

The package of fdn., ordered to Water Valley, is at hand. I like it better than the other, as it is thicker. The first lot sags and breaks down, causing the cells, near the top bar, to stretch out of shape. I have my hives well shaded under peach trees, and an extra cover of loose cypress boards, but even with the trouble I have, I cannot afford to discard the fdn. C. C. SHARP.

Spring Dale, Miss., May 6th, 1878.

This illustrates the diversity of opinion, in regard to thick or thin fdn. Some insist that it must be as thin as we can make it, and others that it must be thick; but I confess, I can see but little difference, only that the bees get along faster, where they have thickness enough to give good clear side walls. Different specimens of wax make a vast difference in the stretching, and very often, the dark wax holds its place much better than the very light yellow. We now use the darkest for brood frames, and the very light yellow for drone fdn., for the section boxes.

That colony of hybrids you sent me last season is doing finely. It swarmed twice last year, and has wintered finely. Hope you will not turn out a humbug. I am only a boy 15 years of age.

NATHAN L. HILDRETH.

Southborough, Apr. 29, '78.

Both you and the hybrids, my young friend, have done very well indeed; and whenever you think there are any symptoms of my becoming a humbug, I wish you boys to write right to me and tell me of it. Remember, I shall depend on you. Perhaps I shall sometime get off the track, as a great many do, and then I shall want you to come and bring me back.

A SECOND SWARM IN APRIL.

I have something to relate that is unheard of in this part of the country. I had a swarm of bees on April 21st, and on April 28th, had another swarm from the same stand. Who can beat it? One hive cast two swarms in April in this latitude. I never heard of such a thing before in my life. The bees have a slight cross of black blood in them. Bees are doing splendidly; no losses during the winter.

Milton, Ill., April 29th, 1878. A. L. FOREMAN.

This seems to be another evidence of the superior energy of *hybrids*.

I commenced last spring (1877) with 20 stocks of bees in tolerably fair condition. I have at this time 29 stands in as good condition as ever I saw bees. I wintered them on the summer stands, in the Simplicity hive, with chaff cushions over the frames. The colonies are very strong, and most of them have drones about ready to hatch. I extracted 1200 lbs. of honey from 21 stands, leaving the balance for box honey, which proved almost an entire failure. L. NIGH, Sr.

Lamar, Mo., April 4th, 1878.

GRAPE SUGAR.

That grape sugar came all right; my bees took about 2 quarts per day, at first.

WESLEY SPANGLE.

Shady Grove, Franklin Co., Pa., April 15th, 1878.

I like the idea of enameled cloth for covering bees; but is there not danger of making the hives too tight, so as to smother the bees in warm weather? I have had a little experience with an old wagon sheet, made of tablecloth stuff, and my bees came rushing out, even when they had plenty of honey. I made the sheets large enough to lap over, so that the cover rested on the edge of the sheet all around.

DANIEL HOWARD.

Colo, Story Co., Iowa, April 22nd, 1878.

This is opening up an old question; whether bees should be allowed to seal up all the cracks and crevices, as they are so much disposed to do at the aproach of cold weather, or whether they must be constrained to leave openings. I should be a little afraid to close the hive as closely as you did, especially, if they were not packed over and above the enameled cloth, with chaff, or something of that nature. In the experiments I have made, with the enameled cloth under the chaff cushions, I have seen no dampness, and nothing objectionable. I tried them clear through one winter, before venturing to adopt and recommend them.

BEES ABSCONDING FROM A BEE TREE.

I cut a couple of bee trees the other day, with the intent of hiving the bees; but as soon as the tree fell, the bees left brood, honey, and all, and clustered high up in a neighboring tree, and finally swarmed and went off. Is that the way they commonly do? if so, what is the remedy to prevent them from going off? C. A. BRIGHAM.

New London, Ohio, May 4th, 1878.

It is very unusual to have a swarm go off in the way you mention. Probably, the queen was started out by the drumming while chopping the tree down, and took wing; the bees would be very likely to follow her, and this constituted a swarm. I have seen one such case, where the hive contained young queens, it being near the usual swarming time.

I have a quantity of old sour honey, probably three years old. Can I feed it to my bees without injury? Or can it be prepared in any way so that it will not do injury? M. H. WOLFAX.

Richmond, Vir., May 2nd, 1878.

Sour honey, and every thing of that description, may be safely fed in warm weather, but you should beware how you make such experiments early in the spring, or late in the fall. The colony I fed on brown sugar last fall, did nicely during warm weather, and went into winter quarters, full of brood and bees, but this spring, they showed signs of dysentery, and have dwindled so badly, that they are almost a failure.

As I use a gig saw a good deal, I thought I would saw you some letters for your office. And, as you always give full instructions about your things, I will give my idea about the letters. They are made of white holly, and I am thinking of making section boxes of some of the same wood. If you should put the letters on some dark wood (black walnut would be good) fasten them on with common pins and cut the points of the pins off, so they will just go through the letter and the board you put them on, enough to clinch a little. D. S. BASSETT.

Farnumsville, Mass., April 15th, 1878.

The letters, wood, and workmanship, are beautiful. I have often thought of white holly for section boxes, but would it not be rather expensive, friend B.? Many thanks.

STRAINING HONEY.

In Jan. GLEANINGS, friend Collins complains that he couldn't strain his honey through your cheese cloth. I use cheese cloth for my strainers, and if my honey is very thick, as it almost always is, I put it on the stove in a large tin pail, with three or four nails to keep the pail from touching the stove, and stir the honey with a big, long spoon. It soon gets so I can whip it around the pail very easily, and when warm enough, goes through the cheese cloth "a kiting." Try it, bro. Collins. You can warm 3 or 4 pailfuls at a time. WILL M. KELLOGG.

Oneida, Ill., Jan. 21, 1878.

TOP BARS AGAIN.

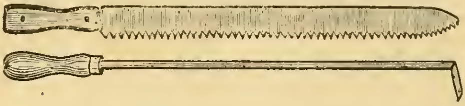
I fear *trouble* with those wooden nailed frames, when filled with honey. I transferred a few partly filled combs; the frames bend and sag in some, and the end breaks off. The top bar is entirely too light; when stiffened by the tin corners, it is all right. I fear the filled combs will bend the frame until it reaches the bottom board, unless the end *breaks*. The hives and honey boxes work nicely. The frame for surplus honey can not be beat. I am disappointed in the chaff hives; I expected much difficulty in getting at the brood chamber. I wish now I had ordered *all* chaff hives. C. J. QUINBY.

White Plains, N. Y., May 3d, 1878.

Thanks for your report, and criticisms. Yours, friend Q., were about the first, all wood frames we made, and we soon made the narrow neck of wood stronger, besides adding to the thickness of the top bar. I agree with you on the chaff hives; there is hardly inconvenience enough in getting at the lower frames, to make it worth while, to consider a better way. Tell us how much will make those weak top bars good, and we will remit.

TRANSFERRING AND TRANSFERRING IMPLEMENTS.

As I have been transferring a number of swarms with good success, I think I will give you my plan of operation. Armed with a bellows smoker, honey knife, and other tools which I will mention soon, I first smoke the bees which I wish to transfer, and move them away from the apiary, to a building where they will be free from robbers, and, as soon as they are removed, put a new hive in their place. I then go to the bees to be transferred, turn the hive bottom side up, and, with the saw knife of which you see an engraving, cut the cross stick each side of the first comb; then loosen the comb at the sides, and, with the pruning knife (see engraving) cut it loose from the top of the hive. I have ready some sticks ¼ in. wide, laid on a clean folded cloth; on these I place the comb, and put over it the frame, and then lay on the top other sticks opposite those under the comb, and fasten the ends of the sticks together with wire. This holds the comb in place in the frame, and it is ready to be put into the new hive. By using the smoke frequently I am able to keep the bees out of the way, and as soon as the comb is transferred, I take the bees which are in the old box, to their new hive, which they readily enter. When they have fastened the comb in the frames, I remove the sticks. C. A. BRIGHAM.


TRANSFERRING IMPLEMENTS.

New London, O., April 29th, 1878.

Please send me a back number of GLEANINGS that has something about Gould's Common Sense Bee Hive. Gillespie, the agent for this hive, says you are a humbug. He sold this county for $125.00. A. A. POTTER.

Columbus, Mo., March 28th, 1878.

I have no doubt he would be very glad to make me out a humbug; I freely forgive him.

I return to you my April No. of GLEANINGS. I suppose some of the boys must have been sleepy when this No. was put up, but as I can't afford to lose any of the good things that it always contains, you will please send me a good one. Now, don't scold any of the fellows for this; mistakes will be made sometimes, and they usually get it right. JOHN D. SLACK.

Plaquemine, La., April 7th, 1878.

Thank you, my friend, for your consideration. I feel the more ashamed of having sent out a journal in the plight in which yours was, since you pass over it so mildly. I hope the boys (and girls too) will all read this.

Mitchell (N. C. of Indiana) and his agent have been selling quite a lot of farm rights to make and use a hive, which, to my notion, is a perfect swindle. I bought a farm right, and paid him $10.00; so I sent to Washington and got a copy of the letters patent. I can use everything that is of any value without buying a right. I have showed the copy of the letters patent to some of my neighbors, and that stops the sale of some farm rights; but he is making some wonderful threats. I am not scared yet, however, for doing as I would wish others to do; viz., enlighten the people. G. W. SHINKLE.

Hamersville, O., April 24th, 1878.

DO SWALLOWS EAT BEES?

Please inform me through GLEANINGS whether *eaves* or *bank* swallows will catch bees.

ED. TUCKER.

Marengo, Iowa Co., Iowa, April 22nd, 1878.

I think not generally, but they may, like some other birds and reptiles, occasionally learn the trick.

TRANSFERRING BY A BEGINNER.

The deed is done; I have transferred 3 swarms, without gloves or vail, and received but 4 stings, and those through carelessness. I must confess my heart was in my mouth, when I tried the first one. I had 5 more to transfer, but concluded to leave the balance until after swarming. I have 8 colonies; rather more than I intended to try the first year, but I was offered 5 strong swarms, in barrels, at $1.00 per swarm, and could not resist, the price being so low.

I have had the greatest difficulty in keeping your pamphlets and A B C from being carried off by my visitors, and finally had to give them up. Please send me some more, and some sample copies of GLEANINGS, and I will take pleasure in distributing them. Enclosed find 25c for A B C, as that has been carried off too. Where is part second? Can't you hurry it up?

The smoker is quite a success, but I would give more flare to the top, so that it will go on more easily. HENRY B. SHAW.

Concordia Parish, La., April 21st, 1878.

Part second of the A B C is now under way, and will be ready about as soon as this meets your eye. If you will leave the smoker top not pushed down quite so far, you will have less trouble in getting it off.

I received a call from one of Mitchell's "patent hive and division board" men. He says, the reason of your calling Mitchell a "swindle" is that you were once in partnership with him, Mitchell, and got into some trouble, and ever since then you have said every thing against him you could. He also said he had a book of 40 pages which told all about it; but I did not see it. C. G. FAXON.

Plano, Ills. Apr. 20th, 1878.

I have never been in company with Mr. Mitchell, have never seen him but twice, and have never had any trouble with him. I have made trouble with his business of obtaining money by false pretenses, no doubt, but I have no unfriendliness towards him at all, and would be very glad indeed to make his acquaintance.

ARTIFICIAL SWARMING. A GOOD WAY.

I have 70 stands of bees all in fine shape, bringing in honey by the quantity. I have taken new honey to market twice this spring, and have some out to take to-day. Honey is in good demand at 20c per lb. Bees are beginning to swarm naturally. I will tell you my way of artificial swarming. I raise my queens, and as soon as my bees commence to cluster outside the hive, I prepare a new hive with a sheet or two of comb, the more the better; put in my queen, and take at least 3 gallons of bees that are clustered on the outside of the hive, if I have to take from a half a dozen to get a swarm large enough; give them a little smoke when put in, and close the entrance till morning, but open the ventilation to give them air while the entrance is closed. I thus give the old stand plenty of surplus room and if they still persist in swarming, I put them back and cut out the queen cells if they have a *good* laying queen; if not, give them one.

Strong colonies are the best moth trap in existence. I work entirely for comb honey.

G. W. HOLT.

Pleasanton, Kan., April 20th 1878.

WILD RICE.

Those flat three cornered files you sent, are the BOSS. With them, I put my circular saws in order as I have never done before. Many thanks. Keep us posted.

What is the value of wild rice as a honey plant? Will the bee-keepers tell us what they know about it? A floating apiary may do well here, who knows? Will C. O. Perrine keep his eye on the wild rice fields along the river? It follows basswood but I think it comes before the aster.

DR. C. M. JOSLIN.

St. Charles. Mich., April 28th, 1878.

Who can tell about wild rice?

Enclosed find one dollar, for which you will please send me another Simplicity smoker. I have given the one you sent me a thorough test, and I think that it is everything that you claim for it. I would not part with mine for ten dollars, if I could not get another. I want this one for a friend of mine, and I think there will be several others wanted.

W. B. MASSEY.

Searcy, Arkansas, April 20th, 1878.

I commenced the season with 7 swarms, increased to 33, and took 900 lbs. of honey. From the 7 colonies, I have sold $172.00 worth of bees, and have 11 strong colonies left. My honey averaged me 15 cts. per lb. My receipts are, therefore, as follows:

Honey, 900 lbs.@15c	$135 00
Bees	172 00
Total	$307 00

From the 10th to the 25th of July, I extracted 443 lbs. of basswood honey. My bees are Italians and hybrids. I winter in a cellar. Have kept bees many years, and never lost a swarm in wintering. With me the Italians are just as hardy as the blacks, a great deal better honey gatherers, and not half so cross. E. J. RUSSEL.

P. S.—Bees are doing splendidly in this vicinity this spring; mine brought in pollen March 11th, the earliest I ever knew them to do it in this country. To-day, April 20th, I have drones out, and queen cells started. My first natural swarm last year was June 2d. Perhaps it would have been well to have stated that, in accomplishing the above result, my success was, in a great part, due to the assistance of my better half, who is quite an expert in the science of apiculture. E. J. R.

Hersey, Mich., April 20th, 1878.

HOW MISTAKES COME.

The hive has come; it came in good condition. It is better than we expected and is really quite a curiosity to people about here. It had been at the depot over a week. It was directed to W. G. Bady, and the name is Cady. My husband found there was a bee hive there and convinced them it was for him, and so got it; he had to pay 10 cents more on the freight. I have decided that I make a pretty poor C, for we have received both of your postals to-day, one dated April 3d, and one the 27th, both directed Bady. MRS. W. G. CADY.

Windsor, Vt., April 3d, 1878.

You have all heard editors repeat and reiterate, "write your name plainly," until I suppose it falls on your ears almost without meaning; but could you know how we puzzle and study over people's names, sometimes passing it around from one expert to another, I think you would, all of you, be more careful. Write the letter, hurriedly, if you must, but when you come to the name and address please take time and write it *well*.

I will mention your $6.00 queen, as I like her very much. She is the largest and lightest colored and produces the yellowest bees I have ever had, and she is the most prolific layer. JOHN W. HARLON.

Salisbury, Mo., Jan., 5th, 1878.

I am very glad, my friend, that your queen pleases you. I presume you got one of the finest, for I would fear to promise that all, even of the $6.00 ones, would turn out as well.

Our Homes.

For whosoever will save his life shall lose it; but whosoever shall lose his life for my sake and the Gospel's, the same shall save it.—Mark 8; 35.

WOULDN'T it be as well to leave the "religious" department of GLEANINGS for insertion in some specially "religious" or sectarian journal? There may be, and probably are, many conscientious and honest Hebrews, Catholics, and free thinkers, who feel a great interest in bee culture, and who might be offended to read anything of a religious nature, in their favorite "*Bee* paper." Scoffers also might say, and *have said*, that when "piety" appears in such a connection with "business," it is for the benefit of the *latter*.

You are at liberty to publish anything in this letter which you may see fit, and I trust nothing I have said will offend you.

Very truly yours, JOHN D. WHITE.

Chicopee, Mass., April 17th, 1878.

To be sure, I am not offended, friend White; on the contrary, I thank you for your kind and frank expression of your views. I have had perhaps a half dozen similar letters, in the past 3 years, since the Home Papers were started, but, on the other hand, I have hundreds of letters urging that they be not, under any circumstances, dropped; and what is of still more importance, a great many have given tangible evidence of good done. I confess, it was with some misgiving as to its paying, that I first started them. But the question was not whether it would pay, but whether it would do good. Of course, I have been accused of doing it as a shrewd way of advertising, and with the sole end and aim of making money. To such I can only offer my simple statement that I had no thought of increasing the circulation of GLEANINGS when it was started; on the contrary, I expected I should lose a great many subscribers, but concluded that the good that might be done, would more than overbalance the loss. To tell it more exactly, at the time of my conversion, I turned the journal, with all my other earthly effects, over to God, to do as he chose with them. I did not know what his purpose would be, and I hardly knew what the impelling force was that was prompting me to start the Home Papers, but my faith was such, and I hope is now, that I had no fear in following as well as I could, the path he seemed to be pointing out to me. I had no fear, but that God would take care of me, and the journal.

I agree with you about the Hebrews, Catholics, free thinkers, and others, and would plead that I have not taught Catholicism, Methodism, Presbyterianism, nor even Baptism, but Jesus Christ the Savior of us all, just as he came to me, at the first. In other words, I have tried to teach truth, honesty, and unselfishness. I think you will all bear witness that I have not sought to exalt myself, for the confessions I have made to you all, here in these pages, show me to be a very common place individual, with perhaps more faults, and beset by more temptations than people in general. I *have* extolled, and advertised, if you choose so to term it, the religion taught by Christ in the Bible, and I have upheld truth and honesty with all the energy and vehemence that God implanted in my nature. So long as I do this (remember I am human, and full of mistakes and blunders) I have no fear but that God will take care of myself and GLEANINGS. To go still farther, God will take care of my blunders, and when I need punishing, he will punish me. If I get proud and overbearing, he will take away the money that he has seen fit to entrust me with, and the circulation of GLEANINGS will go down; but even should this happen, I hope I may have grace to say, "blessed be the name of the Lord."

The question is sometimes asked, "Why is your doctrine any better than that of others?" Why, my friends, I do not believe I have any doctrine; truth, honesty, sobriety, etc., the world all believe in, and that is the only work in hand, and what Christ taught us. If we are agreed on that, there is no need of stopping to argue, for we can shake hands over it, and set to work. Let any one get right into the mission work, or the work of reforming inebriates, those who sell intoxicating liquors and the like, and he will soon see Christ and feel his love, without any further argument. I cannot say I do not care what scoffers say, for I do care what everybody says, and I should be very sorry to have needlessly given any occasion, for any unkind remarks, but, if I should be deterred from doing my duty because of the ridicule I might encounter, I would be a very poor soldier indeed. It is a delicate piece of business, to introduce a religious department into a journal of this class, I know full well, and I know too, how careful I ought to be, if I would have my teachings do good; if I teach one thing and practice another, my words will have but little effect. I have all along felt this, and I shall feel thankful to you all, for any criticisms you may feel like making, even if it is not always possible to reply personally.

Shall I not tell you something of my work, just to illustrate what I have been saying? I confess it will be far more to my taste. Of late there has developed, rather unexpectedly to me, among all those with whom I have labored, a disposition to want to work for me. Next door to us, lives a boy who had a most inveterate habit of swearing. In common conversation, nearly every other sentence was interlarded with almost all the different oaths that pass current among those who are addicted that way, and besides this, he was a very disobedient boy. When something was amiss between him and his parents, or grandparents, the whole neighborhood was shocked by the strings of profanity. I will mention one instance; one day, we heard window glass rattling, and on looking out, saw the boy breaking the windows in the barn one after another, and each time, pausing to demand some thing of his grandfather. I felt, at the time, that a responsibility rested upon me, as he was so near our home, but what could I do? I inquired and found he had been to Sabbath school a little while, but would go no more; neither would he go to the day school, but spent his time mostly on the streets. As the matter, for the time, was dropped, I felt in my heart, "may God help me, and give me wisdom to do something for the boys in our town, like this one." I can only remember that I afterward took particular pains to speak to him kindly, when I passed him, but nothing more, until he a few days ago accosted me as I was coming from dinner as follows:

"Mr. Root, don't you think you could give me something to do in your shop?"

"Well, I would be very glad indeed, S. to give you work, but there is a difficulty. You know how much you swear, and I could not have swearing, among all my girls and boys."

I was prepared to hear him promise not to swear, if I would give him work, but I confess, I was a good deal astonished, when he spoke again.

"Mr. Root, that is just the point: I want to stop swearing, and to be a good boy, and if you will give me a place, I will work steadily and won't swear, and I will come to your Bible class every Sunday morning."

You may be quite sure we struck a bargain, and my young friend has been with us 3 weeks, and is as good and obedient a boy as I ever had in my employ. This was not all; the very first morning of the Bible class, he came and brought another boy with him; other boys followed his example, making like promises, until I began to be frightened at the number I had promised employment. It was God's work, and to him I went in prayer, to show me what I should have all these boys do. Our sceptical friend whom I have mentioned meeting in the jail, became intoxicated still another time, and in my last talk with him, he, too, said if I could give him work, he thought he might get to be a sober man, but unless something were done, he feared there was no hope for him. He had lost all confidence in his own ability to break off the habit, and he would accept or do anything, if he could only have a chance. Although more hands were already at work than I had room for, he was offered a place, and now he, too, is as busy, and I hope happy, as the rest. It was only last Friday night, that he, with several of the rest of the boys I felt so doubtful about, worked all night and all day, too, because they knew that orders were pressing. I have been astonished at almost every step, to find these boys that I felt sure would swear and be rough, prove so faithful, well behaved, and industrious. May God bless them all.

Of course, there are a number of saloons in our town, as well as in other places, and our boys sometimes get intoxicated. Of late a very bad fashion has been inaugurated, of getting drunk on the Sabbath. In spite of temperance lectures, and all that Christian people have done, the evil seems on the increase. At one of our Sunday evening prayer meetings, the matter was mentioned, and I advised that we go and talk with the saloon keepers in regard to the matter, and see what the power of kindness might do. Who would do it? Almost before I thought, I volunteered to take upon myself the task. When Sunday morning came, and I thought of what I had promised to do, to be frank about it, I actually caught myself thinking of some excuse whereby I might evade the duty. "No sir 'ee, old fellow, when you make promises, you must keep them," said a better voice, and after asking God to bless even my blunders, I sallied forth, at just half past eight in the morning. Before starting, I had prayed that the Lord would pave a way before me, if it was his will that I should thus invade peoples homes, but when the first saloonist talked kindly and pleasantly, and promised to give up selling beer entirely, if I would secure him boarders enough so he could pay his rent, besides keeping closed doors on the Sabbath any way, I felt a little astonished to think my prayer had been so fully answered. I cannot tell you all about my morning visits, but at no place was I met uncourteously, and in no place did they fail to thank me for calling their attention to the matter. In two places, they gave me a kind invitation to call at any time, when I saw or heard of anything disorderly about their establishment. At the second place, and where I felt most inclined to pass by without calling, I was met by a singular request, from the old woman who kept the establishment. As soon as she found out who I was, she took me by the hand, and plead most earnestly, that I would do something to save her son from a drunkard's grave, and from the delirium tremens. She, a saloon keeper, and her son a saloon keeper in a neighboring town, she, pleading that I would save him! how inconsistent is humanity! I told her her duty as well as I could, and promised to help him, if possible. Said I,

"Where does he live."

"In Abbeyville."

"In Abbeyville? near our mission Sabbath school?"

"Yes, near your mission Sabbath school."

"I hear they have started up the old brewery in Abbeyville; do you know anything about it?"

"Yes, and that is where you will find my son Simon, I expect, for I hear that he is away from his saloon and is spending most of his time there."

I went away musing. The school in Abbeyville had rather dwindled away of late, and one by one, some of the most regular scholars had begun to drop off. This woman had just told me of the brewery, and it began to dawn into my mind that I had better get a little outside of that brick school house, and go over to the brewery. Should I sit calmly in the new cane bottomed chair (that the scholars have just purchased for me to rest myself in, after my long walk) and let Satan *un*do all my work a great deal faster than I could do it, just over in that brewery, less than a quarter of a mile from the school house?

No! no! no! May God help me to invade all the breweries in the land, if I can accomplish any good by so doing. Our school that day seemed dull; dull to the scholars, and dull to me, until I dropped the lessons, and told them of my work among the saloons of the morning. When I closed by telling them I was ready to visit the saloons of Abbeville, and the brewery too, they were most thoroughly awakened, and warm were the greetings as I closed the school, but none of them thought best to go with me. I crossed the bridge, went up the hill, and came into the little town. Familiar faces smiled at me from the windows, for I had met them every Sabbath for the last two years; but I felt guilty and ashamed, when I remembered that I had never before met them in their own homes. It was so new a thing to see me outside of the school house, that they looked at me in surprise. May God, in reality, bless their homes, as their little lips have so often prayed in the school. I passed Simon's house; it is a sad looking place indeed. I inquired for the brewery. Down a by-street, up a lane, and out of sight under the hill, I found an old dilapidated looking building. Up the steps I walked, and opened a door into a part where I heard many voices, and the clinking of glasses. Ah yes! here were the scholars I had missed, and as I took them kindly by the hand, I felt that, perhaps, I had more need to feel ashamed than they. In the center of the room, sat a person who seemed to be the leader of the band. I could not, at first, see his face, but I very soon found that it was Simon. I had known him a few years ago, but now his face was so changed, so bloated and red, and his eyes so glassy, that I hardly recognized him. The dislike I had felt to entering such a place, and such a crowd, had all gone; I was not even in the least embarrassed. I felt that God was with me, and that it was my right, and my duty, to admonish that it was the Sabbath day. I talked to them pleasantly, and poor Simon, even there, while under the influence of the beer, told how he had gone down, and down, and he had lost all hope. He admitted that beer was killing him, and appealed to some of his comrades, who were attempting a defence of it, if it were not so, that he ought not to drink it. Not one was there, but said it was killing him, and then he almost piteously asked them why they had so often urged him to drink, and asked why they could not let him remain a sober man. I saw a thin, slim looking, young man slip out of the room as we were talking, and when I asked for the brewer, Simon called him, but he only moved farther away; finally, as we went into another apartment after him, he tried to get away by going clear out of doors, but Simon pulled him back, and I talked to him. It was not very much money he was making in his business of poisoning his fellows, as he admitted the beer was poison to Simon, and his wretched hovel seemed but poor pay in the barter for human souls. As I talked to him of a better way of living, he, too, showed that better feelings lurked hidden in his human heart. As I turned to go away, many were the "God bless you's," and Simon plead piteously to be rescued from the abyss that opened before him. He promised to sign a pledge if I had one, and then he said it would be of no use so long as he staid there among his old associates. Even while he was talking, they passed the beer to him again, with the strange perversity of humanity, but he told them, that with God's help, he was going to be a man yet, if he could. He plead that I would not leave him, and begged to have even a humble place in my employ, that he might be out of the way of temptation, and get encouragement from the reformed boys he knew I had already.

Is there any question of opinion, in regard to the work I have just mentioned? if you were to visit the Sabbath school, you might question our ways of doing things, but if the whole end and aim of the work was to do good, and if good followed, there could not be any great difference of opinion. Why not have the Home department in some other paper? I have no influence and weight in another paper as I have here, and I am not acquainted. If a man believes in Christianity, the world says over and over again, he should show it in his daily life. These pages are my daily life. Besides bee keepers are quarrelsome; I am quarrelsome (I am pretty sure some of you think there is no need of my telling it) and with the large amount of traffic that is growing up among us, there are a great many chances for misunderstandings, and disputes. A great many abusive and unkind letters are written. They are not always written to me, but they are very often sent to me, to have me help heal up some disagreement. The Home Papers have mixed themselves all through and through the business matters of bee culture. They have checked me over and over again, and I have multitudes of letters telling me how they have checked those to whom the journal is sent, just in the nick of time, as it were.

It is true, my work is poorly, and many times awkwardly done, but notwithstanding all that, more cheering words have reached me for this department of GLEANINGS, than for all the rest together, and it is, I believe, generally liked as a bee paper; were it not so, its circulation would not be so steadily on the increase. There is one point in which I feel myself lacking, where I think I might get help from all of you. I will illustrate it.

Cases of intoxication have been so frequent on our streets of late, that our people have chosen a committee, who have promised to faithfully prosecute, by law, all cases that come under their notice. The marshal attends to this business, it is true, but it has been said, and I am afraid with much truth, that it is only poor lost boys who are taken to jail, and that men of some standing are passed by. Be this as it may, I am one of that committee, and just now, a man with quite a respectable family is reported, and there is hardly a question but that he should go to jail. Now I do not want to be instrumental in sending one of my fellow citizens to jail, without going to him in a friendly way about it first. If I go, I shall fail in my object, in one of two ways; at least I fear I shall. I can go to him and tell him what I think of his conduct, and perhaps make him a bitter enemy forever, or I can so soften it, that he will plead and make promises that will induce me to give way, and not bring him to justice at all. I have not the faculty of combining firmness and kindness. It looks as if my task, just at present, is to help arrest a disorderly man and take him to jail, and after he is there and is sober, to sing a hymn and kneel in prayer with him, while he threatens to burn my buildings and damage my property generally. I tell you I havn't "growed big enough" for such a task yet, my friends.

I suspect it is the same element that troubles me, in my work of holding up Mitchell and his class. I either fail to do my work thoroughly, or I swing over into a fighting mood, and one extreme is almost as bad as the other. I really do hope Mitchell will move down into our neighborhood, as he talks of doing; I would give more to see him than almost anybody I know of. If we could get him started in some honest business (I know this sounds patronizing, but I cannot help it) what a glorious undertaking it would be.

"Father, forgive them, for they know not what they do."

GEORGE GRIMM.

THE following will, without doubt, prove interesting to many, because it seems to imply that, though our friend Adam Grimm has departed, his work may yet be perpetuated, through that of his son, and that the end of bee culture, with the Grimm family, is not yet.

About six weeks ago I returned from Ann Arbor, Mich., where I had been attending the law school. When I came home, I resolved to give my whole time to study, to prepare myself fitly for my last year's course. But alas! for all human resolutions and endeavors! About two weeks ago I was compelled to look at one of my hives of bees, and since then, I believe I have had the "bee fever." Instead of selling out all I had, as I intended to do, I that day bought out all of my mother, Mrs. Adam Grimm's, and a lot that two of my sisters had. Still I have not enough, and will start to-day in search of more. Were it not that I have another year's course in college before I can graduate, I would at once buy up a large apiary; as it is I must necessarily wait another year before going into the bee business on a grander scale.

I do not believe I could live happily without bees, brought up as I was, in their midst. Their busy hum is sweet music to me, and for hours I could sit and watch them at their work, some going, light and free, others coming, loaded with the sweet liquid that afterward graces our table and fills our purses. Bee business is a business that not only yields the greatest amount of pleasure, but pays well for the capital invested in it. This I say from my own experience, as well as from that of my father before me.

I think I have made no report, as yet, of my success last year. Well, I will only say this much, that I more than trippled about 30 swarms, and got some box honey besides. During the winter, I lost two swarms. GEO. GRIMM.

Jefferson, Wis., May 10th, 1878.

RUBBER LINED DIVISION BOARDS, AND CHAFF.

I WISH to suggest, as an addition to my article sent last week, that if the rubber strip be put in both ends, and set with them both bent towards the combs, it will make an admirable holder for loose chaff filling, for those who use loose bottoms; for when the room is wanted, by lifting the hive off, the chaff will drop out. This you see will do away with the care of chaff cushions, as well as the expense of them. The rubber will hold quite firmly and air tight. J. W. PORTER.

Charlottesville, Va., Feb. 18th, '78.

Thanks for your ingenious idea of getting out the loose chaff without having it come in contact with the bees or combs. The greatest trouble I see with your rubber end division boards, is that you have made no provision to prevent warping. Where chaff is as expensive as it is with us, we can hardly afford to throw it away, to get a fresh supply every season. Nor would I want it loose, in a hive, or about the apiary, that it might be blown about at the sport of the wind. I hardly think our readers will decide to dispense with neat, well made, and nicely fitting cushions.

MAKING HIVES EXTRA WIDE; ALSO, SIDE STORING, VS. TOP STORING.

THE Simplicity hive has width enough to allow two frames of sections for box honey, which fact might be accounted for on the principle of compensation; but now comes Mr. Foster with his *improvement* on the Simplicity, which improvement consists in the enlargement of the space alloted to side boxes in the Simplicity, with the assertion, that section boxes at the *sides of the brood* are an advantage in themselves; that is, as I understand it, they have known advantages over section boxes *on top of the brood*. Now I would very much like to see these advantages concisely set forth in GLEANINGS. Would like to use them. S. F. SEEDWITH.

Upper Montclair, N. J., May 8th, '78.

The idea of making the L. hive wider than 14¼ inches, that the surplus room may be all at the side, instead of in an upper story, is a matter that has been not only discussed, but experimented on for years past. It is, essentially, the same thing as Adair's exploded "New Idea hive;" the same that Mitchell patented, just about the time when every body had abandoned it. While good results may be occasionally secured by side storing, our bee keepers have, almost without exception, abandoned the plan, sooner or later. While visiting bee keepers, in different States, I have found these "Long Idea" hives, almost invariably, tumbled away among the rubbish, after having been in use a season or two, and some of them have been very nicely made, and at a considerable expense, too. Whatever may be the theories, practice has unquestionably decided, that hives made to be exclusively side storing are a failure. Hives made so as to be both side and top storing, are considerably used; but, even then, the greater part of the honey is obtained in the upper portion of the hive, or that directly over the brood. If we give no room above, and not too much at each side, very good results may be obtained; but, just as soon as a space is opened above the brood, it obtains a preference over the boxes at the sides, unless we except comb building. Bees will often build comb faster at the sides, and store honey faster above. Many, on this account, get the comb built at the sides, and then remove the sections to the upper part of the hive, to be filled with honey. I have made a number of experiments with hives just a little wider than the Simplicity, and, with extra strong stocks, there seemed rather to be an advantage; but, taking it all together, I do not think we can very much improve on the dimensions of the L. hive, as Mr. Langstroth gave it to us, and as I have arranged it both for the Simplicity and Chaff hives.

E. W. HALE'S

Price List of Bees & Queens for 1878.

1 Colony Italian Bees with tested queen (before July 10th) $14 00; (after July 10th)	$11 00
1 Colony Italian Bees with untested queen after July 10th	9 50
1 Tested Queen	2 50
1 Untested "	1 00

A discount of 10 per cent on all orders for queens of $10,00 or more. All queens raised from imported mothers. I have made arrangements to Italianize all the black bees within 2 miles of my apiary, and I think *all* my queens will be *purely* mated; all queens will be shipped in rotation, and I desire parties ordering queens, to inform me whether they wish the money returned if the order can not be filled at once.
2-8d Address, E. W. HALE, Wirt C. H., West Va.

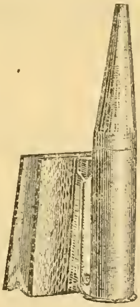
EARLY
ITALIAN QUEENS
FOR 1878.

The increasing demand for our choice Queens has induced us to breed them the present season at the following prices:

Pure Tested Queens in April, May and June, each	$3 00
July, August and September	2 00
Nucleus Hives with pure Tested Queen	5 00
Full Swarm " " "	10 00

A discount will be made on large orders.
Safe arrival guaranteed.
No circulars sent.
☞Our book, "THE APIARY," describing the nature and habits of the Bee, sent post-paid for Fifty Cents.
4-6inq A. F. MOON, Rome, Ga.

SMOKE
AND
SMOKERS.



I am overwhelmed with letters asking "which size of smoker is the best?"
Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries*, and for *coarse fuel* they are the *best*.
The Standard is what its name implies, and constitutes the *bulk* of *sales* so far.
The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants; it is larger, however, than the improved Quinby.
The first "Direct Draft" smoker *ever sold* has been used one year, and sold for one dollar, as the gentleman wanted a *large* size.
It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price*."
They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco*, or *sulphur*.
Directions sent with every smoker.
These smokers are a *necessity in modern bee culture*, and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per	Express..	$1 75	Mail....	$2 00
Standard	" ...	1 50	"	1 60
Small.	" . .	1 00	"	1 00

Patented January. 1878. Manufactured *only* by the inventor, T. F. BINGHAM,
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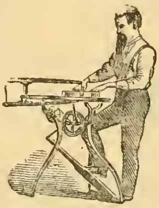
WANTED.

Italian Queens in exchange for Fancy Poultry and Eggs of all the leading varieties. Poultry first class and expect first class Queens.
5-6d KING & WHITE, New London, O.

COMB FOUNDATION.
45 to 55 cts. Per Pound.

For particulars see price list, or send for circular. I refer you to A. I. Root Medina, O.
F. A. SALISBURY,
5-6 Geddes, Onondaga Co. N. Y.



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W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 25
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	9 00
" " per sheet	10

We will ship it from Medina, or from Philadelphia, as may be most convenient.
A. I. ROOT, Medina, Ohio.

Try Me!

Italian Queens, Nucleus and full Colonies, Hives, White Holland Turkeys, and Plymouth Rock eggs. Satisfaction guaranteed, or money refunded. Send for prices. WILSON HARVEY,
4-6 Brownsburg, Bucks Co., Pa.

1878. FOR SALE! 1878.

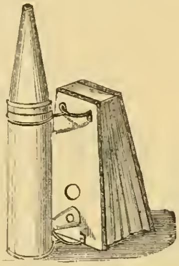
Italian Queens.

Propagated in populous colonies, pure and prolific. Tested queen, $2.00. The same grade of queen so soon as fertilized and laying, $1.00. Also full and nucleus colonies. Orders filled promptly, and safe arrival guaranteed.
Address W. P. HENDERSON,
4-9inq Murfreesboro, Tenn.

Queens Wanted,
And Queens For Sale.

I will pay $1.00 for all the Italian queens any of our Southern friends may find it convenient to send me during the month of May. These same queens, I shall sell for $1.50; you are to guarantee safe delivery, and I shall do the same, but nothing farther. I have made this arrangement to answer the great number of questions in regard to buying and selling early queens. In June, I will pay 90c, and sell for $1.25; after July 1st, 75c, and sell for $1.00.
Tested Queens double above prices. All are to be daughters of imported mothers. I will pay 25c for hybrids, and sell them for 50c, if I can. If you send queens, write on the cage whom they are from and tell us by postal what kind they are. All to be sent by mail. I will pay 15c for black queens, and sell them for 25c, if I can. All the above are to be *fertile laying* queens. Virgin queens are of *no* value. A. I. ROOT, Medina, Ohio.

New Quinby Smokers!



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I am prepared to offer them at Reduced Prices.

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POPLAR SECTIONS CHEAP.

Dovetailed Sections, any size from

4¼x4¼ to 5x6, 2 in. wide.......	....per 1000	$6 00
Sections ready to nail (same size).....	" 1000	4 50

Comb Foundation, 45 to 55 cents per lb. Sample Sections, by mail, 5 cents. Dollar Queens after June 1st. Liberal discount on large orders.

For special prices, address

REINHARD STEHLE,

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KING'S
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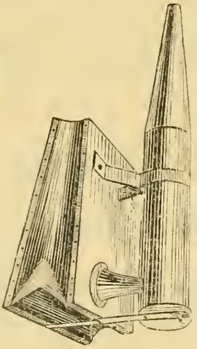
SMOKER,



Is giving unbounded satisfaction wherever used. It *economizes all* the wind and smoke, *burns all combustibles* and goes out ONLY *when* PUT OUT. It is the same size as "Bingham's standard," and is NEAT and DURABLE. Price, $1.00; by mail $1.25. Address,

A. J. KING & CO.,

6tf 61 Hudson St., N. Y.

SIMPLICITY BEE HIVES.

Having fitted up my shop with new machinery, I am prepared to furnish Simplicity—Chaff—Langstroth or other Hives—Metal Cornered Frames—Section Boxes—Shipping Cases, &c. Also Italian Bees—Queens—and Apiarian supplies of all kinds.

For particulars and price list,

Address, G. W. MARSHALL,

2-7d 316, East 16th Street, Davenport, Iowa.

JUST OUT.

J. H. Nellis has issued his new 22 page descriptive, illustrated circular, which is one of the most complete of the kind ever published. It gives prices of Imported and home bred Queens, Nuclei, Full Colonies, Comb Foundation, Bee Hives, Section Boxes, Honey and Wax Extractors, Bee Veils, Gloves, Fountain Pumps, Smokers, &c., &c.

It tells how to introduce queens, how to use foundation, how to manage bees to the best advantage, &c. It gives illustrations of prominent hives, and answers many questions. It is sent free, although we invite you to send 6 cents for postage and to partially cover cost of publishing. We send sample of our new drone comb with each circular. Our drone and worker comb mills, both, work sheets 12x24 or less in size.

Foundation--Price List.

Pure yellow wax, sheets cut to *any size.*

1 to 25	lbs., sheets larger than 5x6, per lb...	55c
25 to 50	" " " " " ...	53c
50 to 100	" " " " " ...	52c
100 to 500	" " " " " ...	50c
500 to 1000	" " " " " ...	48c
1000 lbs. or more	" " " " ...	45c

When sheets are 5x6 or less in size, add 10c per lb. for extra work in cutting and packing. By mail add 25c per lb. for postage. We can supply any quantity at short notice. We are headquarters for foundation. Our circular devotes 3 pages to foundation.

Queens--Price List for May.

Dollar Queens, each...............	$1 50
Warranted " "	2 00
Tested " "	4 00
Imported " "	6 50

We can mail these promptly, and guarantee satisfaction and safe arrival.

Full Colonies--Prices for May.

Italian Bees, with Imported queen	$13 50
" " " home bred tested queen..	10 50
" " " warranted queen..........	8 50
" " " dollar queen...............	7 75

These prices do not include hives. If put in a shipping box, add 70c per colony. If in a hive add the cost of the hive you want. Black stocks in box hives, each $6.00.

Hives, Boxes, &c.

Nellis Hive complete, $6.00; without boxes, $4.00. Doolittle hives, same price. Langstroth hives, from $1.50 to $4.50. Simplicity and Chaff hives at Novice's prices; see his price list in January GLEANINGS, or our new circular. Novice's sections, at his prices. Prize boxes, planed on one side and on edges, 250 for $2.50; 500 for $4.60; 1000 for $8.50; 5000, per 1000, $8.00. Prize cases, crates, &c., at reasonable prices. Send for circular and have it all. Send money orders payable to me on New York City.

J. H. NELLIS,

5tf **Canajoharie, N. Y.**

Price of Dovetail Section Boxes.

(4¼x4¼, 5⅔x4¼ or 6x6 inches.)

In lots of 500 Boxed..............................	$3.25
" " 1000 "	6.00

Will furnish any size Section Box, within 6x6 inches, also Strawberry Boxes. WILLIS D. PARKER,

6 P. O. Box 333, Defiance, Ohio.

Italian Queens and Full Colonies, at Low Prices.

Queens bred from imported and select home bred mothers, warranted to be as pure as any in the U. S. Also, Albino Queens. Safe arrival guaranteed. Send for price list, &c. Address, S. VALENTINE

6d Double Pipe Creek, Carroll Co., Md.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	“ “ waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	8 00
1	Cages, wood and wire cloth, provisioned. See price list	05
12	“ “ “ per doz	50
	“ larger size, double above prices	
20	Candy for bees, can be fed at any season, per lb	15
0	Cards, queen registering, per doz	06
0	“ “ “ per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	“ “ without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring. package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	“ “ top only, per 100	1 00
15	“ “ bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per, yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $6 50 to 10 00	
	“ inside and gearing, including honey-gate	5 00
	“ Hoops to go around the top	50
	“ “ per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same. half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	“ The same, large size, double above prices.	
2	“ 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 50
0	GLEANINGS, Vol's I and II, each	75
0	“ Vol's IV and V, each	1 00
0	“ Vol. III, second-hand	2 00
0	“ first five neatly bound in one	6 00
6	“ “ “ unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	“ “ ½ doz	5 25
	“ “ ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	10
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	“ “ Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such	
0	as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels. per lb	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester	8 50
0	Queens, 25c to $6 00. See price list	
1	Rabbets, Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us,* per lb	25
18	“ Catnip, good seed, per oz. 20c; per lb.	2 00
0	“ Chinese Mustard, per oz	15
18	“ Mellilot, or Sweet Clover, per lb	60
18	“ White Dutch Clover, per lb	35
	“ Motherwort, per oz. 20c; per lb	2 00
18	“ Mignonette, per lb. (25c per oz)	1 75
	“ Simpson Honey Plant, per package	05
	“ “ “ “ per oz	50
18	“ Silver Hull Buckwheat, per lb	10
	“ “ “ “ peck, by Express	75
	“ Common “ per peck	50
18	“ Summer Rape. Sow in June and July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
1	Slate tablets to hang on hives	01
10	Smoker, Quinby's (to Canada 15c extra)	1 50
5	“ Doolittle's, to be held in the mouth	25
	“ Bingham's $1 25; 1 60;	2 00
25	“ OUR OWN, see illustration in price list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of vail, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	12
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	06

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

Italian Queen Bees.

I have propagated and sold Italian Queen Bees for the past 17 years. Will supply a large number for 1878. Send for circular. WM. W. CARY,
2-7inq Colerain, Franklin Co., Mass.

BROOKS BROS.' Circular and Prices of Italian Bees sent free.
4-9 Elizabethtown, Ind., Box 127.

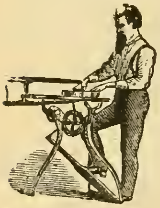
ITALIAN BEES.

Imported and home bred queens; full colonies and nucleus colonies; bee-keeper's supplies of all kinds. Queens bred early in the season. Send for catalogue.
9tf DR. J. P. H. BROWN, Augusta, Ga.

COMB FOUNDATION,

45 TO 55 CTS. PER POUND,

According to quantity bought at one time. For further particulars see our Illustrated Catalogue, mailed on application. A. I. ROOT, Medina, Ohio.



BARNES' PATENT FOOT POWER MACHINERY! CIRCULAR and SCROLL SAWS. Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making.** It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**

W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

E. W. HALE'S

Price List of Bees & Queens for 1878.

1 Colony Italian Bees with tested queen (before July 10th) $14 00; (after July 10th)	$11 00
1 Colony Italian Bees with untested queen after July 10th	9 50
1 Tested Queen	2 50
1 Untested "	1 00

A discount of 10 per cent on all orders for queens of $10,00 or more. All queens raised from imported mothers. I have made arrangements to Italianize all the black bees within 2 miles of my apiary, and I think *all* my queens will be *purely* mated; all queens will be shipped in rotation, and I desire parties ordering queens, to inform me whether they wish the money returned if the order can not be filled at once.
2-8d Address, E. W. HALE, Wirt C. H., West Va.

$1. QUEENS

Now ready for shipment. Reared from imported and home bred mother as preferred. No bee disease ever known here.
7tfd Address M. PARSE, Pine Bluff, Ark.

Grape Sugar.

Superior Double Refined Grape Sugar for feeding bees @ 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb. by the barrel.

We will furnish the above, at above prices, direct from the factory, at Davenport, Iowa, or deliver it on the cars here in Medina, at ½c in advance of above prices. Any amount less than 50 lbs. will be 5c per lb. A. I. ROOT, Medina, O.

Square Honey Jars.

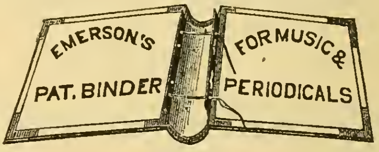
One pound square Honey Jars, per gross...... $5 00
Two " " " " " " 7 00

Corks, Caps, Labels, Langstroth's Bee Hives, Muth's All Metal Honey Extractors, Alsike Clover Seed, &c., at reasonable rates. For further particulars apply to CHAS. F. MUTH, Cincinnati, O.
1-3-5-7-9-11

JUST RECEIVED; CHOICE NEW CROP

Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ½ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.
A. I. ROOT, Medina, Ohio.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

BEE-KEEPER'S SUPPLIES FOR 1878.

Italian Queens—Nucleus and full colonies—Comb Foundation—Hives and Section Boxes complete, furnished on short notice. Ten years' experience in Bee-Keeping and Queen breeding. Satisfaction guaranteed or money refunded. Send for prices.

Eggs and chicks from high class land and water fowls.
2-7 VALENTINE & SON, Carlinville, Ills.

ITALIAN QUEENS.

All bred from imported mothers of my own importation. Dollar queens, $1,00; ready in April. Tested queens before June 1st, $3,00; after, $2,50. Full colonies of Italians from $7,00 to $10,00. Three frame nucleus with tested queen, before June 1st, $5.00, after, $4.50. Comb Foundation, Bee-Keepers' supplies., &c.
2-7d PAUL L. VIALLON, Bayou Goula, La.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. JULY 1, 1878. No. 7.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more, 60c. each. Single Number,* **10c.**

MY EXPERIENCE. NO. 7.

ROBBERS.

DURING the fore part of the season, the robbers did not trouble any, and I almost began to think that the bee papers had exaggerated the trouble caused by these pests; but when I opened a hive, in the middle of the day, during a drouth in August, the performance began. After I had closed the hive, quite a swarm of bees remained, dodging this way and that, and cautiously approaching the entrance. In a few minutes, bees loaded with honey began leaving the hive. I knew they were loaded, by their plump appearance, and the manner in which they flew; but, to be certain that I was not deceived, I caught some of the bees as they were leaving the hive, killed them, and found their honey sacks full of honey. I contracted the entrance, but it did not seem to do any good. The number of robbers rapidly increased, and I saw that I must act promptly, or lose my swarm. I closed the hive, but gave the bees plenty of air, and carried them down cellar. Perhaps carrying them down cellar was unnecessary, but I had read of their being treated in that manner. At sundown I carried the hive out and opened it, letting the robbers go home. The next day, they came back in such numbers, that I was again obliged to carry the swarm down cellar. At night they were again carried to their old stand. The next morning, the robbers were on hand, but the bees then seemed to have learned that, if they wanted their freedom, they had got to fight for it; at least, they "pitched in and hoed their own row." During the rest of the season, the robbers let this swarm alone.

After this, when there was a scarcity of honey, I opened the hives only towards sundown, or early in the morning.

BUYING QUEENS.

I thought I could not spare the money to Italianize my apiary this year (1877), although I knew that, the longer I waited the more it would cost, provided my bees did not die winters. I finally concluded to sell some of them, and use the money to buy queens. I would not have quite so many bees another spring, but they would be Italians.

Just before buckwheat blossomed, I sent postal cards to some of the breeders, asking them if they could send queens promptly, if I should favor them with an order. Most of them replied that they could. I was somewhat puzzled to decide which breeder to patronize, when the idea occurred to me to order a queen apiece from each breeder; and thus not only prevent in and in breeding, but perhaps obtain some desirable crosses. I immediately ordered two queens; in three or four days, I ordered two more; and, in a short time, I sent for two more. I ordered them in this manner, so as to have queens arriving every three or four days; then, if I should lose one, there would soon be another to take her place.

The queens, with the exception of two, arrived in good condition. One cage contained a dead queen, *three* dead bees, *one* bee almost dead, and candy and honey enough to have lasted a cage full of bees, at least a month. The other dead queen was *packed* with a few bees, in an all wire cage about as large as my little finger. When we are obliged to deprive bees of their liberty, let us make their imprisonment as comfortable as we can.

W. Z. HUTCHINSON,
Rogersville, Genesee Co., Mich.

* * *

A BEGINNER'S SUCCESSES AND REVERSES.

ALSO SOMETHING ABOUT THE WAY WE DO THINGS.

THE metal corners came to hand last Saturday, and were all right. The ones received before are on frames, and in hives, filled with comb built on fdn; and I think they are a grand success. In order to try the fdn., I removed 4 combs from an L. hive, and inserted 4 metal cornered ones with fdn.; in 3 days afterward, I found 3 of the combs worked out, and to-day, I noticed one of them filled with brood; and even on the wooden rabbet of an L. hive, I never find them stuck.

In regard to the colony of bees purchased of you, I have been considerably disappointed; when they arrived they were a good strong colony, but I failed to find one cell filled with stores, and I certainly expected, from your price list, that they would have stores enough to last until they could gather from the fields. I commenced to feed immediately, and fed a little every day, until fruit bloom appeared, when I came to the conclusion that they could work their own way, and stopped feeding. The result was that, in about 4 days, I noticed a considerable number of dead bees in front of the hive, one morning, and on opening it, found the whole colony on the bottom board with not a sign of life in them. About that time you could have bought for 25 cts. the whole colony, which I had paid you $13.00 for, a few weeks before. I hunted out the queen, brought her in the house, and placed her on a saucer, intending to examine her with a magnifying glass, when I noticed one leg move. I then warmed some syrup and dropped a couple of drops on her head; in about 5 minutes, she was crawling about the saucer. (About this time prospects brightened, and value raised considerably.) I then removed the hive to the house, and sprinkled the bees and combs freely with syrup, and left them in the house until noon, when I found the queen all right, and a few of the bees crawled up on the frame with her. By night, a few more had revived, and the next morning, I placed the hive, with what bees would stick to the frames, on their regular stand. The remainder I put in a box, but could revive no more of them. Now they are doing well and the queen is laying all right, with bees enough to form a 2 frame nucleus, where I expected, by this time, to have a colony strong enough to divide into two strong stocks.

Hamilton, O., June 3d, '78. JOHN T. GARDNER.

I am very sorry indeed, if our hands were so careless as to put up the bees without sufficient honey. It was not because we wanted to save the honey, my friend, please do not think that of us, but because we were careless. You were careless too, in leaving them to take care of themselves, before they were surely out of danger. We all have to pay the penalty of such carelessness, and I am willing to pay my part of it, if you will tell me what it is. It is a fact that should be well understood, that bees can be revived by warmth and a little warm, diluted honey, after they have all ceased to move. I have known whole swarms to be resuscitated, after they were all on the bottom of the hive, and, to all appearance, "dead as door nails." Never be satisfied by thinking they will get through, but try to have a generous surplus in the hive, all the time; it will pay better than money in the bank. One fact has come to our notice of late, in shipping bees: they often consume an incredible amount of honey in transit. I presume this is because they fill themselves when alarmed, and, by some means, consume it unnaturally. We will try and provide for this in future shipments.

WHERE TO HANG THE FIRST FRAME, ETC.

THE goods you sent two weeks ago have at last come. They were nicely packed and came in excellent condition. But, do you know, I was dunce enough to suppose the frames were coming all ready for the hive! I had been wondering how you would do it, but had got the idea that, with your ability to do wonders, you *might* perform a miracle. How do you suppose I am ever to get them together? Didn't I tell you I was a numbskull, and no carpenter? well, I meant to. What is that little iron anvil for? While I am working over one corner of the frame the rest go all awry. Come up to dinner and teach me how. I saw something in GLEANINGS about putting frames together once, but did not read it, I never thought *I* would have to make frames. We thought you asked a great price for your extractor, and so got one made. Opinions are changed; you ask none too much.

I don't expect you to answer this, or even read it; but I wanted to write it, so that you might know, if you wished to, that the goods are satisfactory.

M. L. MARKHAM.

Plymouth, Mich., June 3d, 1878.

P. S.—That screw driver is the handiest article I have in my apiary, except a sort of easel I have for hanging filled frames directly over an open hive, when I want to study them.

There now! I have ever so many times thought it would be "awful handy," to have some place to put the first frame after we get it out of the hive, so that we can slide the rest apart, and then examine them quietly and at our ease. I, generally, stand it on end near, or leaning against the hive; and, to do this, I have to be very careful not to pinch the bees that are always hanging to the lower corners, or at least should be there, on any frame taken from a good colony. If I set it too slanting, a tender comb is liable to fall out, or bend out of shape, and if I do not set it slanting enough, it falls over, or the wind upsets it; this, if it does not break the comb, kills the bees, and possibly the queen, and if there is any one thing that I think is inexcusably "mean", it is to open a hive where the bees are all quiet and well behaved, and then to pinch or mash the poor fellows, when they have allowed you to tear open their home, and to lift their little selves about in all sorts of awkward ways, without a single bit of protest. I have thought of having some nails on the front of the hive, but they would be in the way; if they were put on the grape vine trellis, they would soon be overrun with foliage, and it would be some trouble to fix them for every hive. Will our friend (who I guess is a woman, by her quaint humor, although she does not say so) please tell us more about the easel. I should be most happy to come up to dinner, but the fact is I am only allowed 15 minutes for dinner, and 2½ minutes more to kiss and talk to the new baby. We will put the frames all together for the same price, if you can afford to pay the high rates charged for shipping such very bulky packages. If you follow the directions in the price list, it is a very simple matter to put them together.

FRIEND ROOP'S PLAN OF PREVENTING SWARMING.

SEVERAL of your readers have asked for a more explicit explanation of our management of natural swarms; we, therefore, ask for space again. *First*, one wing of all our queens is *clipped*. We hive the first swarm that issues, on the old stand, setting the old hive on a new stand several rods away, if convenient, and destroy all queen cells at once. It is then ready for the next swarm any time within a week. We do not always find it necessary to destroy the queen cells, for the old queen sometimes saves us the trouble. Out of 100 swarms handled last season, as above, not over 12 or 15 offered to swarm again.

You stated in March GLEANINGS that Roop could furnish queens and bees at any time. We wrote you correcting the mistake at once, but did not see it in GLEANINGS. Bad weather has delayed our operations fearfully, but we want to say here, that we will satisfy all those that have given us their orders, if it takes all the bees we have got. Have patience is all we ask.

The queen I got of you is splendid; better than I ever thought imported queens were.

HIRAM ROOP.

Carson City, Mich., May 20th, 1878.

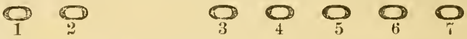
I think the success of this plan would depend much on the season, and the yield of honey. If these were very good, I think the bees would, sometimes, swarm over and over again.

BEES CAN COUNT.

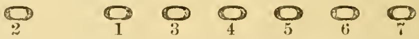
A VALUABLE ITEM.

I RECEIVED the smoker and comb fdn., in good shape. That smoker is "away up"; the bees fairly "get down on their knees before it."

I accidentally learned, a few days ago, that bees can count. I had a row of hives arranged thus,



No 2. alone having bees in it; I rearranged them thus,



leaving No. 2 in the same place, in fact, not disturbing it at all. Now, it was just fun to see the bees coming from the fields, and going into hive No. 1, which was then second in the row; when they found it empty, they were the most excited lot of bees you ever saw, marching around with their loads of pollen and honey, and no place to put it. You see, they had counted instead of taking a bee line home, and they thought they knew that their hive was 2nd in the row. From this, I judge that hives could be moved several feet, and the bees would not notice it, if only we keep the relative position of things the same. After all, perhaps bees are guided more like human beings than we think, and less by that *bee line instinct*.

T. L. RIGGS.

Portland, Oregon, May 28th, 1878.

The matter you mention, is one I have often observed, and the propensity of bees to mark especially, the end of the row of hives, was what led me to have the house apiary so that only 3 hives were on a side; one in the centre, and those at each side, next to one of the corners of the building.

CANDY FOR QUEEN CAGES &C.

THE queens sent us by friend Hayhurst seemed so much healthier and more lively than some others which we have received, that we sent to him for his formula for making the candy. Some of them were kept caged as much as 10 days after their journey, and not one queen, and scarcely a bee, has died. He answers as follows :

I use granulated sugar for candy, and prepare it as follows. Wet it with a *very little* hot water, just sufficient to dissolve it, boil it until it will grain when stirred in a cold dish (it requires but very little boiling), then take it from the fire and stir it until it becomes slightly cloudy, and pour it into cages as fast as possible. If it gets cold before it is all poured out, I have to heat it up again with a little more water.

What seems to be necessary, is to dissolve the sugar in as little water as possible, and then stir it enough so that when cold a slight crust will cover the surface, while the interior will be soft and creamy; in this condition the water evaporates very slowly. It is probable that the loss of so many queens this season is more due to the character of the candy, than the size of the cage.

E. M. HAYHURST.

Kansas City, Mo.

This plan seemed to answer excellently last fall, but after the cages were wintered over, the candy seemed to have become too hard, and many of the queens were lost. I presume friend H. used his cages as soon as they were made ; but we cannot always be sure that our cages will be used while the candy is fresh, and so, in our last lot, we moistened the sugar with honey instead of water. It is well known that honey holds moisture for a long time, and our experiments, so far, seem to indicate that it will preserve the candy in just about the state we wish it. To get it "cooked" just right, seems to be one of the fine arts ; for, after we had filled over a thousand cages, and had got it so that, after being stirred, it could be easily cut with a knife, but was not soft enough to get displaced in shipping, we thought we had it all right ; but, on filling some odd sized cages for a customer, imagine our chagrin at getting the following.

Smokers and queen cages received, with which I am *highly pleased*, except with the candy in the cages. I presume the candy was prepared by one of your assistants, and you were not aware that *such* was shipped. The only candy from you that I ever saw, was in the cage with my imported queen; I *expected* to receive the same quality of candy. I do *not wish any* remuneration for my disappointment, but as you invite all who purchase from you to report, I feel that I must inform you of the "stuff" now received, instead of candy. Every cage was daubed, and it was running out of the cracks of the shipping box.

I am making "queen rearing" a specialty, and have now 100 queens, reared from my imported mother, for sale. I sent for cages *with candy*, to send the queens to you, according to terms stated in GLEANINGS. I send by to-day's mail a sample of the "candy" received. If *you* say this soft "candy" is *all right* to ship my queens safely, I will send them to you without delay, or as soon as I hear from you; otherwise, I will try to make candy from white sugar, and send queens by the middle of this month. An *early answer is desired*.

M. T. ROWE.

Mock's Store, Jackson Co., Mo., June 4th, '78.

Oh dear, oh dear! what a world of trouble I do have. I told the clerks to write to our friend, that if the candy was really so soft, the cages would not answer, we would send him a lot of new ones, at our expense ; and then I made up my mind to look doleful, for the rest the day ; but when I picked up the following, almost the next thing, I concluded I would do the best I could to have the candy just right, and not look doleful after all.

Goods received, and all right. They suit me to a "dot". You can safely anticipate the favorable opinion of your customers, and say "thank you" in advance.

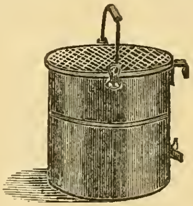
JOHN W. JONES.

Coral Hill, Ky., June 4th, 1878.

* * *

TOWNLEY'S SMOKER.

ALL bellows smokers that I have used are objectionable in this respect, that, when handling cross swarms of hybrid bees, they require an extra hand, or else the operator must use the bellows with one hand while he works with the other. For several years past, I have used an ash pail, setting it on a stand just high enough so that the wind would blow the smoke over the top of the hive; but as the hives were not all the same height, it was necessary to have several stands to correspond with the height of the hives. I now use a pail made expressly for the purpose, which will be readily understood by the following cut



TOWNLEY'S SMOKER.

Eight inches in diameter, by ten inches high is large enough. It is made of sheet iron, with the handle riveted on. The hook at the top is two inches long, so that, when hooked onto a hive, there will be the space of an inch between the smoker and hive, while the curved piece of sheet iron, the centre of which is riveted to the side of the smoker, near the bottom, will keep that part also away from the hive. Enough dry peat, or "marsh muck", or coarse, damp saw dust, or fine, damp chips, can be put into it, with some fire, to keep it smoking half a day at a time, and it is always ready for use. All that is necessary is to hang it on the windward side of the hive, stand on the opposite side, and go right to work.

Tompkins, Jackson Co., Mich. J. H. TOWNLEY.

I have many times noticed the same objection to the bellows smokers that you mention, friend Townley, and this is one reason why I have made the fire pot of ours large, so that it might be placed on one corner of the hive, and keep a small cloud of smoke in the air, over the hive. One great objection to an open fire pot is that bees often fall into the fire; and to obviate this, I have taken the liberty to add a wire cloth cover to the Townley smoker, as seen in the cut. To make the implement lighter, I would have it made of tin, instead of sheet iron, and if it is kept somewhere out of the rain, as, of course, it always should be in any case, it will keep nice, and last a long while. The greatest objection to these smokers is, as mentioned in the A B C, that ones eyes are always liable to be smoked in a way that is, to me, more annoying than an occasional sting; for the wind is rarely so accommodating as to blow the smoke just where wanted, and no where else. For all this, I presume there are many of you, who will prefer such a smoker to any other kind.

HONEY DEW.

I SEND you some honey dew insects. Last Sunday, I noticed my bees moving over a small poplar (tulip tree), and, upon examining it, I found the leaves dripping with honey dew. Did it exude from the leaves? I saw no living insects, and yet the dew fell in a continuous shower. A closer examination showed me the small limbs covered with scale like bunches, piled on each other like oyster shells. One end of the apparent shell or scale is larger and broader than the other, with a slight crease up the middle; about midway up this crease is a small white dot; this dot is a small valve covering a hole through which the honey dew is thrown by the insect. As I stood and watched, I could see the valve open, a few jets of fluid thrown out, and the valve closed again. This would be repeated every moment or two, and as there are untold numbers of these strange things on the tree, you can have some idea of the amount of dew thrown out. For a whole week now, these insects have been making honey dew; how much longer they will continue to do so, I can't tell, but intend to watch them.

I never noticed any thing like it before, and thought that it might be of interest to some of your readers, therefore I write this account. I send you some of the insects to-day by mail; if it is any thing new, let us all have the benefit of your opinion through GLEANINGS. I cannot yet believe the "Exudation Theory" of honey dew, but will wait till I find out more about it. W. J. WILLARD.

Jonesboro, Ills.

Many thanks, friend W. The scaly little fellows that cover the twig you send, I should scarcely have thought of calling insects, had you not mentioned it. The phenomena are truly wonderful, and, at least, demonstrate that honey dew is not the product of any one species of insects; for, in our vicinity, it is thrown off by a kind of aphide, as I have described in A B C; and it seems to me quite possible, that those who have declared that no insects were visable, where the honey was plenteous, may have entirely overlooked this animated scale on the limbs and twigs. Prof. Cook writes in regard to the specimen as follows:

The bark lice are the first ones referred to in first edition of Manual, page 35, in second edition, page 218. It is a species of *Lecanium*, and a great pest, as it furnishes miserable stores for bees, and soon destroys the tulip tree. A. J. COOK.

CALIFORNIA.

DID you ever try to hive a wagon load of bees? If so, and you had them all in one mass, with 6 or 8 old queens and 15 or 20 young ones, you had a task that tried your bee-keeping qualifications. I had *such* a time; they wouldn't *stay put* anywhere, and after hiving 15 or 20 large swarms, each with one or more queens and two empty combs, they *would persist* in coming out and flying back to the heap. At last, they started for the mountains, but Eddie (my 13 year old boy, who is my only assistant so far), with a looking glass, made them light, and they lit in good sized swarms, scattered over a distance of 40 rods; so that, by giving each hive a frame of brood, all were saved and no trouble made. And right here, comes in the secret of hiving swarms with old and young queens, or with any other, for that matter, *a frame of brood will keep any swarm.* I have tried it in more than 100 cases, without a single failure.

This business of hiving bees is one to which little attention is given in your journals, and yet it, and its following duties, are quite as important as fixing smokers, over which so much controversy has arisen. Here, with 5 or 6 weeks of every day swarming (I have had over 300 this season so far), the business becomes systematized, and we become so used to hearing the oft repeated cry "Swarm out!" that it excites no feeling except that of work to be done, or of disgust that some swarm, already partly hived, must be hurried in, before the next comes and tries to go in or join it. All through April, we had cloudy, rainy weather, pretty cold, too; but every day, even in light showers, one or more swarms would issue. I hived several swarms with my rubber coat on in the rain, and two swarms were caught, one day, in a pouring rain and hail storm. With the thermometer at 53° and raining, it is something besides *heat* which drives out a swarm. Let some of those gentlemen who want to account for the fact of bees swarming, lay it to the natural instinct of all animal creation, to increase their species.

There has been general complaint of swarms returning, of queens getting lost, etc. Many of mine went back, but by a little management they can be hived just as well as any other swarm. Eddie usually secures the old queen, by finding her on the ground near the hive, while I replace the old hive with a new one, and as soon as all are in, put the swarm where I want it, and set the old hive back.

Swarming, with me, ended May 1st, but since then, we get from 3 to 5 a day. During April, I had 15 to 24 a day.

While that wet weather lasted, the flowers yielded no honey, the rain washing it all out; so that, from the 15th to 26th, I had to feed the swarms to keep them from starving. On the 28th, it cleared up, and the blue sage then being in full bloom poured out the honey in such quantities, that in 3 days, all strong hives were filled full; and all at once they rushed for the section boxes, and began building comb at a furious rate. Now I have them filling some hundreds of section boxes; not your kind of frames, but 8 frames make a box here; some hives are at work in 6 boxes, which, when filled, will hold 80 lbs. net. Since the rains held up, we have foggy nights and by 6 A. M. it is drizzling a fine rain, making everything wet. All the honey gathered so far is thin as water,—so thin it will run out of the cells, if a comb is held wrong side up. They can't cap it and we can't extract any of this unripe sweetened water, and so we are waiting for it to get ripe, while every cell is full to overflowing. Comb building is going on like magic. A good swarm fills its main frames full in from 5 to 6 days. I have about 75 filling the 2d story main frames, in my new two story Simplicity hives. The combs are white as snow, and the frames are heavy as iron wedges.

Mr. C. J. Fox, president of our county bee society, called a day or two ago, on his return from his apiary, some 15 miles north of me. He brought along a case of new, blue sage honey, white as the driven snow. He reported any quantity nearly ready to come off. He has, by much labor, perfected a packing case which, when you come to see it this fall, filled with our honey, I think you will adopt in place of your "Prize crate", with glass sides. This crate holds ½ boxes or whole ones, and has slides at the ends of the combs, acting like the covers of starch boxes. The case, holding 3 full Harbison section boxes, or about 45 lbs. net, is of fine size, 13x30x7, with holes at the ends for the ends of the fingers to carry by. We call this the "Fox crate", as he gives its use free to all.

Our main honey plants, white sage, sumac, and greasewood, are not yet in bloom. All promise splendidly, for honey and lots of hard work.

G. F. MERRIAM.

San Luis Rey, Cal., May 13th, 1878.

I think you are right, friend M., in regard to the importance of the matter of swarming being more thoroughly systematized, but you certainly are putting it rather strong, when you say that a frame of brood will keep *any* swarm. Every now and then, we have exceptions to the rule, as the following note, just at hand, will attest.

I would say that I have "Bee on the brain". I sent to you, in March, for A B C in Bee Culture, and you were kind enough to send GLEANINGS for March. At that time, I had 7 colonies in log and box hives. I went to work and put up 20 movable frame hives, something like Langstroth's, I suppose, and I now have 15 strong colonies. It is a "new departure" in this section, and some of the wise ones shake their heads ominously. I have had 6 natural swarms, one of which absconded, after being hived the second time with a *frame of brood*; also 3 artificial swarms, which are all doing well. The bee fever is rising very fast, in this community, and I have already had several jobs of transferring for my neighbors. H. H. FOX.

Tribulation, Mo., May 28th, 1878.

A BEGINNER'S TRIALS AND TRIUMPHS.

I PURCHASED, in Abbeville, Vermilion Parish, La., last Feb. 25 bee hives, 18 of which were of the improved sort; but the movable frames were nothing but slender strips of wood, fastened together with very slender nails, and came apart on the least strain, leaving a portion of the torn honey comb and brood in the hive. I was imposed upon by the party, for he sold them to me for movable frame hives. I went to work, in March, transferring from the old fashioned hives. I did it in very dry weather, and out of 7 swarms I lost 5. I also lost 3 colonies out of the improved hives. However, I have caught 4 swarms of Italians, one of which made about 30 lbs. of honey and brood in less than 4 weeks, besides hatching out a colony, and supplying another hive with a frame of larvæ, out of which I have an Italian queen. I have made 3 Italian queens, with frames of larvæ, as you directed. I put an empty frame into an Italian hive, about the middle of March, when my orange trees were in full bloom, and in 4 days, it was full of comb; on the 6th day from the time I put it in, I removed it into a queenless colony of black bees, and, at this present writing, fully one-half of the workers are yellow.

I owe you a thousand thanks for the new field of pleasurable occupation that you have opened up to me, in your GLEANINGS. I have learned more, in the last 3 months, than I had in all my life before. I have also learned two things that you have not mentioned in your paper: first, the most active and industrious bees are those that sting the worst, independent of any other quality or condition; secondly, I have seen none of them stop work on *Sunday*. I am sorry that I live too far off to profit by all the good things which you have to sell; even your paper misses oftener than I get it.

H. O. READ, M. D.

Grande Chenier, La., May 10th, 1878.

AUTOMATIC SWARMING.

ANOTHER STEP IN THE MATTER.

A YEAR ago the past winter, I lost all my bees. In the spring, I heard of a swarm for sale about 7 or 8 miles from where I live, and went and bought them. The man had 4 swarms, and said he got them as follows. He made some box hives, and fastened them in the tops of trees in the woods. He had fastened up 4 hives, the year before, and had got 3 of them filled with bees. He also said that several of his neighbors had done the same with like success.

Another item I would like to mention; one day last July, while in the woods, I heard a loud buzzing of bees. I soon discovered them flying about a hole in the top of a tree. Supposing I had found a swarm of bees, I went to my neighbor, on whose land the tree was, and obtained permission to cut it, intending to transfer them to a movable frame hive; but, on cutting the tree, I found nothing but a handful of bees. On relating the circumstance to a neighbor, he said that the bees which I had seen had been sent out in advance of the swarm, to find a place for them, before they came off. He had been in search of bee trees, a year or two before, and came to one where he saw bees flying in and out of a hole, and supposed he had found a bee tree. He went home and returned in a week from that day, intending to cut the tree; but, on his arrival at the spot, he saw a swarm of bees in the air. He watched them, and they all went into the tree where he had seen the bees a week before.

It would appear that bees do sometimes select their place of refuge, before swarming.

Channahon, Ill., May 24th, 1878. E. WEST.

As Mr. Conaway, in April No., and Mr. Dean, in May No., have told what they know about catching absconding swarms, or swarms running around loose, I will tell you what I know about it. I have practiced it pretty successfully, for the last four years, and will give you what experience has taught me to be the best plan. In the first place, make a plain box, not a full sized hive, but large enough to contain about 1500 or 1600 square inches, and of the right dimensions to hold the frame you use in your apiary; fasten the top board on with screws; cut the entrance long and narrow, and tack a piece of tin on, so as to prevent squirrels or mice from gnawing in to it. Now, take your frame and fasten on, as a comb guide, quite a small strip of old comb. (If you put in much comb, the moth will take possession; comb fdn. might do; I have never tried it.) Now, put your frames in your box, adjust them at the proper distance apart, and tack them fast, so they will not jostle about in moving, and you are ready for the woods. When you get to the timber, select just such a tree as you would be likely to stop at, if you were hunting bee trees,—an old gnarled and knotty tree. Take your box up among the limbs, and place it so that it will be shaded at least from 10 until 4 o'clock, and with the entrance as close to the trunk of the tree as possible; fasten it securely enough to prevent storms from blowing it down, but so that you can get it loose yourself, when wanted, and in such a way, that you can open it when you please, without taking it down. In selecting a tree, get one, if possible, that you can climb easily, or provide an Indian ladder (a pole cut with the limbs trimmed), since it will be necessary for you to look at your box often, say every 2 or 3 days; spiders will enter and spin their web, so that bees will not be able to get in, and you will have to go up, and take the top off, and clean them out; again, should you go there in the middle of the day, in swarming season, you will see so many bees flying around, and in and out, that you will conclude you have a swarm sure, and 'twill be necessary for you to go up and see; but, after catching one or two, you will be able to tell the difference. When you have caught a swarm,—which will not be long, if in the season, and bees are as plenty and hollow trees as scarce, as they are here—go in the evening, after the bees are all in, take your box down, and carry it home if a mile from home, if not, carry it to some neighbor's that is a mile from where the box was, and a mile or more from home, so that you do not lose the worker bees by their going back. After allowing them to stay there for one or two months, you can bring them home, take the frames out, and put them in a hive, and return the box to the tree; the oftener it is used the better. I have never succeeded by using a full sized hive of 2000 or 2200 square inches, but succeed best with the size given.

The weather is cold and wet. Bees are doing no good; in fact, they are starving, where not fed. There is not one stand in 20 that is not killing their drones. White clover is coming in bloom, but there is no sunshine. The prospect is gloomy for increase or honey. JAS. A. SIMPSON.

Alexis, Ills., May 18th, 1878.

Well now, boys, have we not had instances enough, so that we can go to work, with a reasonable expectation of success, and fix a hive in some bushy tree, or secluded spot, somewhere near the apiary, where the swarms have shown a fancy for clustering, in order to catch, at least, an occasional swarm, and thus start the rest in the habit of going there? you all know how swarms in some unaccountable way get a fashion of all clustering in the same spot. Well, after we get them in the fashion of choosing this same hive, we will have different ones, with some tough old combs ready prepared, and then, as soon as the swarm has gone in, we will take it where we wish it to stand and put another hive in its place. Should a swarm come out when we are away at church or Sabbath school, they will be found all nicely at work when we get home, that is, if we can make the arrangement work. When we get all nicely fixed, *if it succeeds*, I will have our artist at work to give you all a view of it.

A PLEA IN FAVOR OF BLACK BEES.

I DROPPED you a postal, a few days ago, saying that I had not received your comb fdn.; since then, I have received it in good order, and have already used it most satisfactorily.

I have now an Italian apiary of 56 colonies in full blast, and one of black bees of 85 colonies, and another of 50 colonies of blacks. The pasturage for the Italians is very good from fruit and clover; that of the 85 black colonies is most excellent with 5 acres of Alsike clover: the 50 colonies have only fruit bloom. Now, from the Italians, I have not taken one drop of honey; but from the 85 black colonies in the Alsike clover region, I have taken 25 lbs. to the colony. From the 50 swarms among the fruit trees, I have also taken nothing, and the success of the season depends upon the summer and fall pasturage. I can say farther, that 6 black colonies, at the Italian apiary, swarmed 3 weeks sooner than the Italians. The Italians were as strong, when they went into winter quarters, as the blacks, but the latter dwindled none, while the former dwindled fully 10 per cent. Now, friend Root, I will not pass sentence until fall, but these premises seem to squint at the superiority of the blacks.

My plan of getting good Italian queens, to completely Italianize the apiary, is to select 4 or 5 of the best and purest colonies, and permit them to swarm the second time. The day before swarming you can detect 3 or more queens piping; when they swarm, a superfluity of queens issue; when I hive the swarm, I capture and cage all the queens but one (the bees would kill these, of course), and if piping is still heard in the old hive, I open it and cage all the queens found except one. In this way, I have secured 3 and 4 beautiful, well developed queens, from one of these second swarms,—much finer specimens than I can raise in nuclei, and raised more in accordance with nature. These I introduce immediately to other colonies.

Please tell me, in next GLEANINGS, what becomes of the coloring matter of pollen, when fed to young bees. The paste in the cells is as white as milk. May not the drones fill other offices, in bee economy, than that of fertilizing the queen?

GEO. B. PETERS.
Council Bend, Ark., May 25th, 1878.

Our friend has written before somewhat to the same effect, but I have assured him that he would, sooner or later, decide strongly in favor of the Italians, as have all the rest who, at first, took the same position, he is now inclined to take. The one failing of spring dwindling, I believe, is generally conceded to be more prevalent among the Italians than among the blacks.

BOTANY OF HONEY PLANTS.

PROF. M. J. BEAL:—I send you a bunch of flowers and leaves from a shrub or bush that grows on the cliffs near my house, on which the bees are working more actively, I believe, than on the apple bloom, which is open at the same time. I would like to know the name of the plant. Please answer through GLEANINGS. M. E. PARKER.
Somerset, Ky., April 16th, 1878.

This is Bladder-nut, *Staphylea trifolia*. It is a clean, handsome shrub, growing on moist soil, from Canada south to Tennessee and Carolina. It is quite common in central Michigan. I have often observed that bees are fond of it, as they are of our maples, which belong to the same family of plants. W. J. BEAL, Lansing, Mich.

CHOOSING A HOME BEFORE SWARMING.

I HAVE positive proof that bees do not always select a home before running off, and also that a hive in the apiary will not prevent their absconding, though I once had a swarm go into a hive that the bees had starved out of, some two months before.

The first bees I ever owned, were found on a crab tree, some 25 years ago. They had settled on the fork of a limb, and had two combs about 6 inches long, by 4 inches wide at the base. I hived them, and carried them home, a distance of over one-half a mile, and they went to work immediately and did well. Two years after, my son found a swarm in a pile of brush; they had also built some comb. They were both late and small swarms, probably second or third swarms.

On Apr. 30th, I was away from home, and when I returned, my wife said that No. 15, Simplicity hive, had swarmed between 8 and 9 o'clock, and after flying around for some time, had gone back into the hive. On examination, next morning, I found they had swarmed for certain and left the "digins", although there was a hive, full of nice, clean comb, within six feet of theirs, that had been there all winter. The same queen swarmed 18 days before any other, last spring, and tried to run off then, but I brought her down to the fence about ten rods from her hive, by the aid of a mirror and a bright sun, and it was the only swarm I had that filled ten frames with comb last year. I forgot to say that they left 15 queen cells, 6 of which were capped. These cells I cut out and made nuclei. The first cell hatched on the 8th of May, and the last one was not sealed over until that day. C. T. SMITH.
O'Fallon, Ill., May 21st, 1878.

I am pretty certain they do not always select a home before swarming, friend S., but do they not as a general rule? and can we not manage to entice a large part of the swarms that come out? The swarms you mention, seem to have been unfortunate in selecting a location, and who knows but that they would have eagerly taken possession of a convenient hive, had it been located near that brush heap or crab apple tree. You say you have had one swarm come out, and hive themselves in a hive in the apiary; does not this look encouraging? If they did pass by a hive that was filled with empty combs, was it not because it was not as secluded as they would prefer to have a home by choice? It seems the instances are quite frequent, where bees have chosen brush heaps, limbs of trees, or unsafe cavities between fence rails and the like, for taking up their abodes; now can we not furnish them something better than these, where they will be pretty sure to find them?

FAIRS AND THEIR AWARDS.

ALSO A WORD ABOUT CONVENTIONS.

THE state fair committee, I think, did me an injustice, in their award of premiums for the greatest yield of honey from one hive of bees, and on this point, I would like to have your construction, as if you were a judge. Entry No. 299 reads thus: "Greatest yield of honey from one swarm of bees, with statement of arrangement, protection against moth, &c.; 5 lbs. of the honey to be exhibited and quantity duly certified to. Premium $10.00."

It has always been held, since the progressive record in bee-keeping came in, that the bee-keeper is entitled to the credit of whatever he could make out of one swarm of bees, in the way of surplus honey, whether it was done by artificially dividing them, so as to increase the working stock, or by allowing them to swarm naturally. That does not matter, provided the products are from the start of one swarm, and produced in one season.

Salem, N. C. W. F. SHULTZ.

This point, like a great many others, needs to be plainly specified, in the award before hand, and I would suggest to county and state fairs, the propriety of having all these matters fixed as plainly as may be, now, before their premium lists are printed. With all the care they can take, to have these things plainly specified, there will still be room left for different constructions, and misunderstandings. To the progressive bee-keeper, it does seem many times a little funny, to say the least, the way things are done at fairs. At our own county fair, last season, the premiums on honey, both first and second, were awarded to very inferior boxes of honey, and no premium at all was given on a case of 1 lb. sections, that were the admiration of almost every body present. The reason which the judges gave for so doing, was that the glass case of sections was not a box of honey, and that the list read for the "best box of honey". Mine was a box of honey boxes, and nothing was offered for such an arrangement. I confess the temptation was very strong, to declare I would never go to a fair again at all; but maturer reflection brings to mind that these judges are my own townsmen and women, and good honest people. They may have had a little prejudice, perhaps, against the honey built on fdn., although no such reason was given, and if they have, what then? shall I stay away, and give as a reason that I got mad because they would not give me the premium? or shall I take some more honey and hives and extractors and, perhaps, a fdn. machine, with some of the girls to roll the wax where all can see, and thus help to make fairs a means of educating the people, as they really should be, without caring who gets the premium, or at least trying not to care? for I am full of fight, when there is any chance for rivalry, as I have told you before. Well, I think I will choose the latter course, and if the fair gets to be full of corruption and horse racing, I will try and put my shoulder to the wheel, and help it along into a better track; if my efforts do not amount to any thing, I will still do the best I can, and ask God to give me faith and patience, so long as the people love fairs, and turn out to them, as they always seem to do. May God help me to feel the same towards conventions, and try to avoid being contrary, remembering that true worth will always be recognized, sooner or later, and if it is not recognized where we think it ought to be, it is a pretty sure sign that it does not exist. The expense of going long distances, to either conventions or fairs, may be saved, by attending those in our own county, and trying to make them what they should be.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

FROM your postal of the 22nd ult., it seems that you have some doubt about my telling the truth in regard to the frame stuff's not having been planed. I took the whole lot to the Mechanics' Planing Mills in St. Louis, to have them finished, for which I paid them $2.00, The use of a team one day was $2.00. What my time is worth, away from home one day, in the swarming season, with 50 stocks of Italians, I leave to your own judgment. One swarm which came out that day, settled, in such a place that my wife could not hive them and to the woods they went.

For fear that you may think that I ought to have a notice in the "Growlery", I will send you, by mail, 3 pieces of some of your work. When you get them, call a counsel of your overseers (if you have any), and ask them why they allowed such work as that to pass. I think you will agree with me that it ought to have been put among the rubbish. No 1 is a fair sample of ¼ of the end pieces. About ½ of them are cut *nearly* through the centre, but the worst of it is that they vary from ⅛ to 3-16 in length. Put your square on No. 2 and then imagine 2 of them on a hive leaning in opposite directions. About ½ of them are like the sample. I have put up about 500 of the sections, and have on my tables about 100 pieces like No. 3. How many more there are among the balance, I do not know. I cannot understand why your work does not come out all alike, after the gauges are set. I would not use a single one of the end pieces, if I had time to make others, for I consider them a first class botch work.

I don't expect you, or any one else, to pay me for any overcharge any R. R. Co. makes on goods shipped to me; I simply wanted to know if $8.00 from Medina to Cin. was correct or not, which you ought to know, or which you could, by a very little trouble, find out.

I would not be bothered with an other lot of stuff like it, if it were presented to me. The comb guides are just enough too short and too thin to be of no use. The top and bottom pieces of the two inch frames vary so much in length, that ¾ of the end pieces have to be planed off on the inside, to admit the sections.

From reading GLEANINGS, one would suppose that everything about your place works as accurately as a watch factory, but your work does not prove it. A. W. W.

June 6th, 1878.

I presume I should not have published the above, had it not been for the concluding remark. If I have given you an erroneous impression in regard to my work, through GLEANINGS, I feel like hastening with all speed to undeceive you. Our friend ordered some closed end Q. frames, with section boxes to match; something that neither I nor any of the hands had ever seen. Worst of all, the order was given in such a way, that it had to be "figured out". It came at a time when almost every body was doing things wrong, because I was not omnipresent, and when skilled mechanics were standing still, because I could not find time to explain to them what was wanted. Amid the noise and roar of machinery that ceased not, either day or night, and of ever so many calling, I was obliged to figure out, as best I could, how the things had best be made; for as I could not tell what friend W. wanted, I could not very well explain to the hands what I wanted, and the whole atmosphere, about that time, I remember, seemed full of floating interrogation points; if the confusion at the Tower of Babel was half as bad, I pity them. Every body "wanted to know, you know." When it came to directing the clerks about writing apologies, we had about the same state of affairs, and so, while I never dreamed of such a thing, our friend thought I doubted his word. Perhaps it is this unintentional sting, that has caused him to write as he has and the thought that he did not *know* that I would never doubt his word, stings me still more. I know I ought to have done better, but you see I am too "small" for such a rush of business, and you overloaded me. If a truthful statement of my business would kill it, let it die; for I had rather die an honest death, than flourish dishonestly. I have paid my friend for the above blundering, and I hope it is all pleasant now. If I have been giving only the better side in GLEANINGS of late, let us have the other side, by all means, so "here goes."

Your buckwheat came yesterday; one mouth after the order. This is a fine way to do business! and then, instead of packing it in a box, and sending by freight as you ought to have done, you must send by express with charges, $5.30, making $7.30 for three pecks of buckwheat. Very cheap, eh?

When you get another order from me or my friends, you will know it. I agree to everything that the *A. B. J.* says against you. F. D. L.
Texas, May 30th, 1878.

Whew! I do not know how it is with other folks, but postals like the above make me feel as if some one had struck me with a club. I can freely forgive our friend, for I know just how one feels, when he is charged dollars where he expected to pay dimes. We had a plenty of silver hull buckwheat raised, as we supposed, and the man who had it said he would bring it up town before we wanted it, any way; but when the order came, we were out, and a postal had to be dispatched to him. He came in and told some one he had no more to spare, and they forgot to tell me. The order was forgotten until I hunted it up, and then we sent it at once to Lane, of Wis. Of course it had to go by express as it was so late; in fact, if put in a box and sent by freight, the charges to Texas might not have been any less. He should have been notified of the facts in the case, but that, too, was overlooked. There is no use of twisting the matter about as I know of, for the fault all rests on my shoulders. Accordingly, I have written all the parties that I will pay back all the money they have sent me, and let them keep the goods, too, if nothing else will make it pleasant. I could not stand this very long, it is true, but—you see it will teach me to do better, if anything will; and if it does not, why, the sooner I get "wound up," the better. Meanwhile, please do not be too hard on a fellow. I will try and do right, even if you don't come at me with "pitchforks".

If the *A. B. J.* did take me to task in regard to some of my short comings, I believe they did not accuse me of dishonesty, or a lack of interest in the good of my patrons.

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500 sections &c., to hand. Time 10 days, weight 97 lbs., charges, $1.58. All right; but here comes the "rub." In ordering the sections, I said that my frame to hold them was "exactly 11⅝ in. by 9¼ in. inside". (See order May 13.) These would take boxes *scant* 4⅝x5 13-16. The long pieces are all right. The short ones, all but one bundle, are 4 11-15 long, thus requiring a frame *at least* ⅛ in. deeper than mine. They are as they came, I measured at each end of the bundle. For proof, see end piece, also your bill, enclosed. What shall I do? Yours with kind sympathy, O. F.
May 30th, 1878.

Yours of the 4th is received. Having no machinery I cannot fix those sections (and make any kind of a *job*) in the way you say. I sent all the way to you, in order to get *extra nice work*, but instead of that, they are *rough*, *broken*, *sappy*, *black*, contain *worm holes*, and do not *at all compare* with your 5c sample.

Please don't put me in "Growlery," as I *did* not mean to mention *this*, and should not had they been otherwise right. The only way I see, is for you to send some more end pieces, *cut right*, and I will return these, if you wish.

"Ro" will please hand this to the "Boss". O. F.

I don't mean to try to excuse myself, but, my friends, if you will give the *exact dimensions* you wish your work, and then not say another word about it, it would help us amazingly. Do not leave anything for us to calculate, but make all your calculations yourself, if possible. We have paid from $30 to $32 per M., for lumber for our sections, but have had one or two lots that ran poor. I presume it was my duty to send it back to our lumber dealer, rather than to use it, but, as he had usually given us nice stuff, I hated to do it. We are now purchasing our lumber directly from the forests of Mich., and so *that* part will be remedied, I hope. If the sample we sent out was better than the average, I assure you it was accidental, and not intentional. I tell you, one has to be watchful, to have *every* thing all right, *always*.

I received the goods that you sent me, last night, and they were all right. I am perfectly satisfied with them; they are better than I supposed they would be; I *thank* you very much for sending me 16 boxes more than I ordered. The expressage on them was only 85c. My bees are doing first rate; the old hive gave a very large swarm the 16th of May, and I am looking for another every day.
C. S. MILLER.
State Hill, N. Y. June 5th, 1878.

There now! That last letter did not belong in the "Growlery" after all, but it is so much easier (?) to publish such letters, it "sort o' slipped in". O, dear me! there is just one more that lays heavily on my conscience, and then, I believe, I have given you all the very bad ones.

I hardly know how or what to say to you. Accompanying this I send to you a sample of the boxes you sent me. I have taken a small part out of the box, and find that several bunches are cut like these; these are from two bunches. I have been setting up some of the sections, that is, such of them as are dovetailed so as to go together. Each box is from 5x6 to 5x6 1-16 inches, inside measure; now, this lets the glass fall right into the box. They should have been 5 in. wide, as they are, and 6 in. deep minus the thickness of *either* top or bottom. As it is, my glass does not even reach to the top inside when the boxes are put together. The boxes also vary in size. It is more than they are all worth to get them into shape, so that I can use them. It seems from the looks of some of the bunches, that they were not held up to the saw gauge. You remember two years ago when you sent out fdn., some of which the bees refused to use, that you asked each one to send in their bill for damages. You must remember that I wrote you it was considerable damage to me, but did not ask for any remuneration and do not now, on the fdn.; but I think this is the worst lot of section boxes I ever saw. I would not go to the depot for all that I could draw. The worst of all is, it is time we had our sections ready to set on the hives, and here I am. I have ordered some from Syracuse. If this is a specimen of the work you send out, my advice is, you had better save the money you intend to build that factory with. W. H. B.
May 31st, 1878.

To own up, the above letter did almost make me sick—sick of trying to build the brick factory, at least—and to make amends as far as I could, I have offered to send all the money (over $30.) back, and let our friend keep the sections too. This order, also, was for an odd design, and after writing the third time for particulars, our friend only said he wanted a closed top section box, to hold 5x6 glass. However, this was no excuse for not making them all of a length, I am well aware. I have "scolded" the hands just as much as is for their good, and I am afraid a little more, and we are trying to devise machinery that cannot be made to cut a wrong length. And now, I have a favor to ask of you, my friends; when you wish something we do not advertise, and that we have never made or seen, will you not send us an exact sample of what is wanted. Almost any one of our boys will do work right, if you will give him a sample to look at, or he will tell you he cannot make it. To show you that I am not the only unfortunate, I will append a letter from one of the great factories where cutlery is made.

> Yours of the 11th received. We must ask for a pattern to make the knives by; a wooden one of exact shape and size will do. We cannot undertake to make odd things by description; experience is against it. We about always "come to grief" if we attempt it. JOHN RUSSELL CUTLERY CO.
> Turner's Falls, Mass., May 13th, 1878.

The above was in answer to the second description of a honey knife, for W. H. B., above. What shall I do? A great many of these troubles come from a lack of definite orders; some of them because we cannot read the figures, even after we have, several of us, spent much time upon them, and—hold on, Novice, or *you* will get put in the "Growlery." This year, for the first time, I have guaranteed the safe arrival of all queens, and two letters are just at hand, acknowledging safe arrival, but after they were lost in introducing, the purchasers think I ought to stand that, as they "couldn't have been *very* good, or they wouldn't have died." I guess I did wrong in telling about the money you had sent me, and I will try not to complain, for you have all been very kind to me; please don't scold any more than you can help, and I will do the very best I can. Now friend W., do not say any more that I talk as if every thing here was as accurate as a watch factory. They have "troubles" in watch factories, too, as I happen to know; but I am sorry for them, and for every body else who has to be punished for their own good, as I have been.

> The queen I received was a worthless one; could not fly, and I think never had; as, after 6 days' trial, a queenless swarm killed her. It has not been any of the time the loss of the $1.50 that I complain of; *it is the way I have been used,—wronged, swindled, by false advertisements.* Now you say, if nothing else will do, you will return the money and let me keep both it and the queen, and ask if that will do? I say *no, emphatically;* I wish to be used as a man. I do not belong to the swine fraternity and do not wish to associate with them. Rational men, if they make mistakes, hasten to admit them and ask to rectify, as far as can be, known errors, and do not try to brow beat—but I have said more than I had intended. H. C. C.

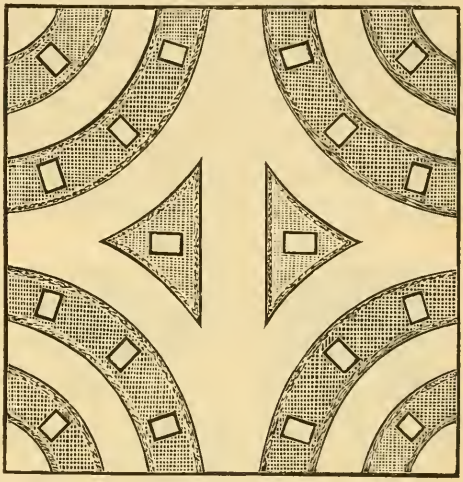
In this case, I do not see what else I can do, but to sit still and be "pounded". Our friend will not have his money back, and I presume would not accept of another queen. I certainly did not intend that any of the advertisements should convey false impressions, and they have been changed repeatedly, to avoid such possibility. Some of the letters I have given, were prompted by a sudden impulse, and an apology has since been received for one of them. I can freely forgive it all, and I hope you can forgive me.

It may seem, at first glance, that no good purpose can come of showing up the worst side of humanity, as I have done, but I have a kind of feeling, that it may help us all to do better. Let us be careful, when impatient, and be slow to believe our fellow beings really mean to wrong us. We are careless and heedless, but I believe very few of us are dishonest at heart. May we forgive each other, as freely as God is willing to forgive us all.

HOWARD'S APIARY.

I HAVE taken the liberty to send you a pencil sketch of my apiary, only I haven't that many stands of bees. The main walk is from my house to the orchard. The 2 hives in the centre are ornamented very nicely; the beds on which the hives stand are raised six inches high, with sod on the edges and flowers planted between the hives. The walks are made of gravel.

Please tell us how you like it. W. C. HOWARD.
Cnelsea, Iowa, June 8th, 1878.



AN ORNAMENTAL APIARY.

I like it very much, my friend, and tender you thanks for a suggestion in the right direction. Will those who set their hives down in all sorts of awkward shapes please take the hint, and if they do not adopt just this arrangement, choose something similar, or something that will be pleasing to the eye. Will the bees make any more honey, for being fixed up in this style? To be sure they will, for it will be such a pleasant place you will always be around them, and the more bees are petted and fussed with, the more they will thrive. Just think of the idea of showing your friends such an apiary, when they come to pay you a visit. Who will send in a sketch of a nicer apiary than the above? Unless we have the Chaff hives, something is rather needed for shade, during the hottest days.

FRAMES, FEEDING, DRONES, ETC.

MAKING FRAMES AND NEEDED STRENGTH OF TOP BAR.

JOHN D. WHITE finds fault with your metal corner frames, as being too light in the top bar. When the frame is filled, the comb is fastened to the frame all round, making a solid block like a piece of board. When I have been out of corners, I have made frames all of wood, by nailing the pieces together in the same position as when using corners, with fine 3 penny nails, 2 to a corner. To do this I use all top bar stuff, the sides and bottom being too thin to nail, I make the top bar long enough to take the place of the top corner and slightly bevel it the contrary way from White's, and then, instead of sharpening to a single point as Shane does, I imitate the metal corner by cutting a notch in the middle. For a man like myself, having no machinery and few tools, this way of making all wood frames is simpler than yours, and does not weaken the top bar. I use no comb guide, but fasten the fdn. to the under side of the top bar, by putting on a coat of melted wax and then rubbing the edge of the fdn. into it with a stiff butcher knife. The wood of the frames I now plane smooth all around and paint on the outside, the inside of the hive being treated in the same manner. With the metal corners and rabbets and an enameled sheet over the frames in addition, I think we have little further need of improvements to facilitate the manipulations of the interior of a Lawn hive.

Feeding bees is like comb fdn.; the more I see of it the better I like it. I use grape sugar for feeding. Fruit bloom was very plentiful the present season, so I ceased feeding, thinking it would carry the bees to white clover; but the last of May I found two hives with an unusual number of dead bees at the entrance, and, on examination, I found them in a starving condition. I immediately gave them frames of comb containing honey. The rest of the bees discovered it, and were ravenous for a part of it. On a further examination, I found the rest nearly as bad off. They had killed off their drones, and instead of being ready to swarm, had nearly stopped breeding. If, as you say, they will not take sugar syrup when honey is plenty in the fields, it seems to me good policy to let them have access to it at all times. But I have not yet found a time, when they flew freely, that they would not carry syrup of grape sugar to some extent.

DRONES FROM VIRGIN QUEENS

I have some interest in, having an Italian queen of that kind. W. S. Boyd's letter, on page 195, June number, casts doubt on their usefulness. Quinby says (page 37), "I have frequently, since obtaining the Italian, reared queens intentionally late in the season, that I might have drone-laying queens for the purpose of raising early drones." Cook speaks of drones from virgin queens, in connection with others, as though he considered them equally effective. If the generally received theory of their origin is correct, they should be as good as any. Yet, except for the purpose Quinby mentions, it don't seem good economy to have queens that cannot lay any but drone eggs, when they can just as well lay both kinds.

OUR HOMES

In the June number of GLEANINGS, leads me to take your part, against White's suggestion of leaving all religious matter for sectarian or especially religious papers; as though honest Hebrews, Catholics, and Freethinkers did not, as a rule, do good works in their every day life. Sectarian questions may best be discussed in sectarian papers; but in all the home papers I have read, I think it would be difficult to come to a certain conclusion as to what particular sect or creed you believed in or belonged to. In this age and country, most of us are Freethinkers, whether we belong to a religious body or not; and it is this free thought and the liberty of free action, so long as the actions do no positive harm to us or our fellows, that constitutes the great advancement this generation enjoys over previous ones. The main object of the Home Papers, it seems to me, is to have us so control and limit our acts that they shall do the least harm and the most good; and they show us how to do this in practice, not in theory merely. Many times this can best be done by associated effort among the masses, leaving speculative theories to take care of themselves. So far as my knowledge extends, "Our Homes" are read by all whether religious professors or not, without a word of objection to the place they are published in; and probably nine out of every ten of their readers would never see them, if published in a sectarian paper. D. C. UNDERHILL.

Seneca, Ills., June 10th, 1878.

◆

THE April, May, and June GLEANINGS are now gone, and we are obliged to offer 10c a piece for them, as we did for the Jan., Feb., and March No's. To prevent such a catastrophe again, we are printing 6000 of the July No's. For the whole of the above six No's of this year, we will pay 75c, or sell them for $1.00. You see you pay 50c for them, and then sell them for 75c, after you have read them. Is not that a good speculation?

◆

"A NEWLY imported Hungarian, employed on a farm a few miles north of the city, lifted up a beehive the other day to see what the bees were doing under there. He knows now. He says they were making chain lightning and had 2,000 tons of it on hand, which exploded before he had time to let the box down."—*Hawk-Eye.*

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, JULY 1, 1878.

Call unto me, and I will answer thee, and shew thee great and mighty things, which thou knowest not.—Jeremiah 33; 3.

◆

"NARY a word," have we heard from, or of, our friend Perrine since he started.

◆

WHEN everything is just right, hives all in readiness, plenty of frames, fdn., section boxes, and plenty of help to do the work, I tell you it is just fun, to take charge of 200 colonies in the month of June.

◆

AND now, friend Alley offers to send queens, and you are not to pay a cent, until you get them. If that is not fair, I don't know what is. My friends, will you not be as magnanimous, and be sure that he has his money, just the minute you get your queen? even if she is not all you expected, and as large as some of you have seen, *send him his money*, even before you get her introduced; for a queen rearer has many a trial and disappointment which you may know nothing of. Think gently, and *speak* gently of—the man who raises queens for sale.

◆

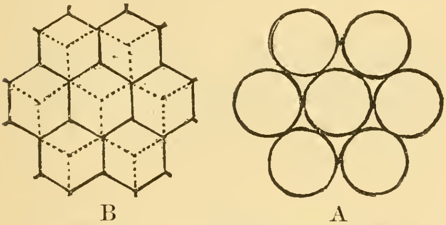
SOME one in the *A. B. J.* asks me to "rise and explain" how that wax fell short. Friend Burch stated it exactly, in saying one of the clerks made a mistake of 10 lbs. in weighing it, and as the shipper did not give the amount that there should have been, I had no means of discovering the fact, until informed there should have been 10 lbs. more. If I were obliged individually to weigh *all* the wax sent in, beside attending to my other duties, I fear I should go crazy sure. When a box of wax is received the gross weight is always marked on it. After the box is emptied, the weight of the box is written under and subtracted. In the case mentioned, when the box was hunted up the figures showed a mistake had been made in subtracting.

◆

THE letter in our last number objecting to the Home Papers has called forth a great amount of correspondence on the subject. Three persons among the lot have taken the same, or a similar ground, with friend White; all the rest have expressed a desire to have them continued. As the latter are *greatly* in the excess, and among them are many who do not favor religion or the Bible at all, shall we not consult the wishes of the greatest number, and go on? I sincerely thank those who have stated their objections, for the remembrance of their words will, without doubt, prove a wholesome check upon me, when I am disposed to get out of the narrow path in which I feel my work should be done. In case I should stray a little, unwisely, will you not all be lenient with your friend? I feel free to ask this, because the Home Papers are, and always have been, given gratis; in computing how large a journal I can give you for $1.00, they are never taken into account. I try hard to make the journal worth $1.00, aside from them.

HONEY COMB.—Every body knows that the cells of the honey comb are 6 sided, and I presume most people know why they are 6 sided. If they were square, the young bee would have a much more uncomfortable cradle, in which to grow up, and it would take a much greater space to accommodate a given number of bees. This last would, of itself, be a fatal objection; for to have the greatest benefit of the accumulated animal heat of the brood, they must be closely packed together. This is not only the case with the unhatched bees, but with the bees of a whole colony in winter; when each bee is snugly ensconced in a cell, they occupy less room than they could by any other arrangement.

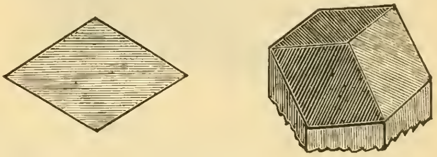
If the cells were round, they could be grouped together much in the same way as they are now; viz., one in the centre, and 6 all around it, equally distant from the central one, and from each other, like the cut, A, in the figure below; but even then, the circles will leave much waste room in the corners, that the bees would have to fill with wax.



WHY THE CELLS OF THE HONEY COMB ARE MADE 6 SIDED.

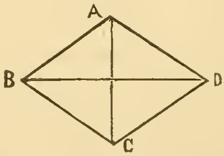
At B, we see the cells are nearly as comfortable for the young bee, as a round one would be—of course I mean from our point of view, for it is quite likely that the bees know just what they need a great deal better than we do—and, at the same time, they come together in such a way that *no* space is left to be filled up at all. The bees, therfore, can make the walls of their cells so thin that they are little more than a silky covering, as it were, that separates each one from its neighbor. It must also be remembered that a bee, when in his cell, is squeezed up, if we may so term it, so as to occupy much less space than he otherwise would; and this is why the combined animal heat of the cluster is so much better economized in winter, when the bees have a small circle of empty cells to cluster in, with sealed stores all around them.

But, my friends, this is not half of the ingenuity displayed about the cell of the bee. These hexagonal cells must have some kind of a wall or partition between the inmates of one series of cells, and those in the cells on the opposite side. If we had a plane partition running across the cells at right angles with the sides, the cells would have flat bottoms which would not fit the rounded body of the bee, besides leaving useless corners, just as there would have been, if the cells had been made round or square. Well, this problem was solved in much the same way, by making the bottom of the cell of three little lozenge shaped plates. In the figure below we give one of these little plates, and also show the manner in which three of them are put together to form the bottom of the cell.

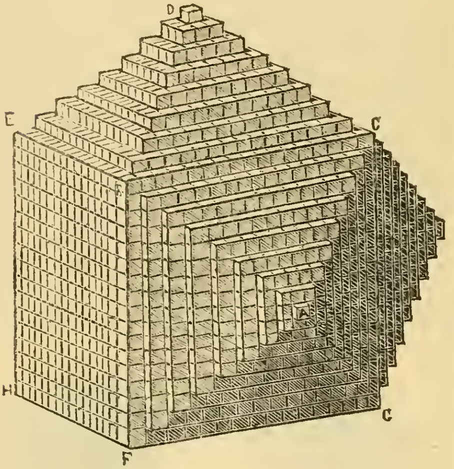


HOW THE BOTTOM OF THE CELL IS MADE.

Now, if the little lozenge plates were square, we should have much the same arrangement, but the bottom would be too sharp pointed, as it were, to use wax with the best economy, or to best accommodate the body of the infantile bee. Should we, on the contrary, make the lozenge a little longer, we should have the bottom of the cell too nearly flat, to use wax with most economy, or for the comfort of the young bee. Either extreme is bad, and there is an exact point, or rather a precise proportion that the width of this lozenge should bear to the length. This proportion has been long ago decided to be such that, if the width of the lozenge is equal to the side of a square, the length should be exactly equal to the diagonal of this same square. This has been proven, by quite an intricate geometrical problem; but a short time ago, while getting out our machine for making the fdn., I discovered a much shorter way of working this beautiful problem.

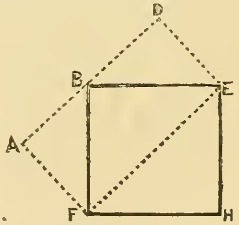


In the figure above, let A B C D represent the lozenge at the bottom of the cell, and A C the width, while B D is the length of said lozenge. Now the point I wish to prove is, that C D bears the same proportion to B D. that the side of a square does to the diagonal of the same square.

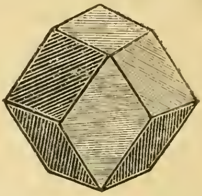


THE MATHEMATICS OF THE HONEY COMB.

Suppose we have a cubical block, E B C G F, and that we pile small blocks on its sides as shown, so as to raise pyramids of such an inclination that a line from any apex to the next, as from A to D, will just touch the edge of the cube, B C. Now A C D B is the geometric lozenge we are seeking. Its width, B C, is equal to one side of the square, E B F H, for it is one side of the cube. Now to prove that A D is equal to the diagonal, E F, we will use the diagram below.



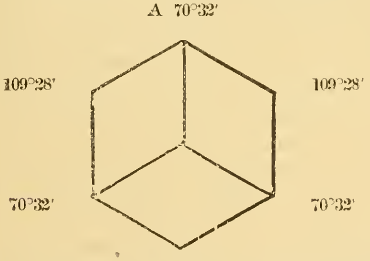
Let E B F H represent the cube, and the dotted lines, the pyramids. If the pyramids are so made that the line A D is a straight, continuous one, it is evident, by a little reflection, that the angles, A and D, will be right angles. If this is so, A D is exactly equal to E F, the point we were to prove. Now, referring to the former figure, if we should go on building these pyramids on all sides of the cube, we will have the beautiful geometrical figure called the rhombic dodecahedron; it is so called, because it is a solid figure having 12 equal sides, and each side is a rhomb, or lozenge, such as we have described. Where the obtuse angles of three of these rhombs meet, as at C, we shall have the exact figure of the bottom of a honey comb cell. A picture of the geometrical solid we have mentioned, is given below.



RHOMBIC DODECAHEDRON.

How does it come that the bees have solved so exactly this intricate problem, and know just in what form and shape their precious wax can be used, so as to hold the most honey, with the very least expenditure of labor and material? Some are content with saying that they do it by instinct, and let it drop there; but I believe God has given us something farther to do, than to invent names for things, and then let them drop. By carefully studying the different hives in a large apiary, we see that not all of them build comb precisely alike, and not all colonies are equally skilled in working wax down to this wonderful thinness. Some bees will waste their precious moments—and wax—in making great, awkward lumps of wax; coarse, irregular cells; crooked, uneven comb; etc., with very bad economy either for the production of brood, or for the storing of honey; while others will have all their work so even and true, and so little wax will be wasted, that it is wonderful to contemplate the regularity and system, with which the little fellows have labored. Now, it does not require any great amount of wisdom, to predict that the latter would, in a state of nature, stand a far better chance of wintering than the ones that were wasteful and irregular in their ways of doing things. If this be the case, those queens whose progeny were best laborers, most skillful wax workers, as well as most energetic honey gatherers, would be most sure to perpetuate themselves, while the others would, sooner or later, become extinct. I have found more of a tendency in bees to sport, or to show queer peculiarities, than in any other department of the animal or vegetable kingdom. They vary in color, in shape, in size, in disposition, in energy; and almost every colony, if studied closely, will be found to have some little fashion or way of doing things, different from all the rest in the apiary. Now, when we take into account the fact that many generations can be reared in a single summer, we see how rapidly, by fostering and encouraging any desire trait or disposition, the bees may be molded to our will. The egg that is laid by a queen to-day may, by proper care, be made to produce a queen laying eggs of the same kind herself, in the short time of only 25 days, as I have explained heretofore. Well, if we should pick out a queen whose progeny made the thinnest comb, and rear others from her, doing the same thing for several generations, we would probably get bees whose combs would break down by the weight of the honey. In a state of nature, this extreme would correct itself, as well as the other; but the point I wish you to see is right here; *geometrical accuracy in the shape of the cells can never be over done, and can only be reached by absolute perfection; and this absolute perfection, the bees have been constantly aiming at through endless ages.* Is it anything strange, my friends, that the bees have got the honey comb pretty near right by this time? I will give you a little story, and one which has been very interesting to me, from page 150, Vol. II, *American Bee Journal.*

> If a single cell be isolated, it will be seen that the sides rise from the outer edges of the three lozenges above mentioned, so that there are of course six sides, the transverse section of which gives a perfect hexagon. Many years ago, Maraldi, being struck with the fact that the lozenge-shaped plates always had the same angles, took the trouble to measure them, and found that in each lozenge the large angles measured 108°28', and the smaller 70°32', the two together making 180°, the equivalent of two right angles. He also noted the fact that the apex of the three sided cup was formed by the union of three of the greater angles. The three united lozenges are seen in the figure above.



> Some time afterward, Reaumur, thinking that this remarkable uniformity of angle might have some connection with the wonderful economy of space which is observed in the bee-comb, hit upon a very ingenious plan. Without mentioning his reasons for the question, he asked Kœnig, the mathematician, to make the following calculation: Given a hexagonal vessel terminated by three lozenge-shaped plates, what are the angles which would give the greatest amount of space with the least amount of material?
>
> Kœnig made his calculations, and found that the angles were 129°26' and 70°34', almost precisely agreeing with the measurements of Maraldi. The reader is requested to remember these angles.
>
> Reaumur, on receiving the answer, concluded that the bee had very nearly solved the difficult mathematical problem, the difference between the measurement and the calculation being so small as to be practically negative in the actual construction of so small an object as the bee-cell.
>
> Mathematicians were naturally delighted with the result of the investigation, for it showed how beautifully practical science could be aided by theoretical knowledge; and the construction of the bee-cell became a famous problem in the economy of nature. In comparison with the honey which the cell is intended to contain, the wax is a rare and costly substance, secreted in very small quantities, and requiring much time and a large expenditure of honey for its production. It is therefore essential that the quantity of wax employed in making the comb should be as little, and that of the honey which could be stored in it as great, as possible.
>
> For a long time these statements remained uncontroverted. Anyone with the proper instruments could measure the angles for himself, and the calculations of a mathematician like Kœnig would hardly be questioned. However, Maclaurin, the well-known Scotch mathematician, was not satisfied. The two results very nearly tallied with each other, but not quite, and he felt that in a mathematical question precision was a necessity. So he tried the whole question himself, and found Muraldi's measurement correct—namely, 109°28', and 70°32'.
>
> He then set to work at the problem which was worked out by Kœnig, and found that the true theoretical angles were 109°28' and 80°32', precisely corresponding with the actual measurement of the bee-cell.
>
> Another question now arose. How did this discrepancy occur? On investigation, it was found that no blame attached to Kœnig, but that the error lay in the book of Logarithms which he used. Thus a mistake in a mathematical work was accidentally discovered by measuring the angles of a bee-cell—*a mistake sufficiently great to have caused the loss of a ship whose captain happened to use a copy of the same Logarithmic tables for calculating his longitudes.*

DIFFERENT KINDS OF CELLS IN THE HONEY COMB.

The bees build two distinct, regular sizes; drone, and worker cells. The worker comb measures very nearly five cells to the inch, on an average. Some specimens average a little larger, and some a little smaller; but when the comb is at all irregular, it is quite apt to be a little larger. The best specimens of true worker comb, generally contain 5 cells within the space of an inch, and therefore this measure has been adopted for the comb foundation. If there are five cells to the inch, a square inch would give, on an average, about 25 cells, and 25 on the opposite side would make 50 young bees that would be hatched from every square inch of solid brood. As the artificial comb, or fdn., is so much more regular than the natural comb, we get a great many more bees in a given surface of comb, and here, at least, we can fairly claim to have improved on nature.

The drone comb measures just about 4 cells to the inch, but the bees seem less particular about the size of it, than with the worker. They very often seem to make the cells of such size as to best fill out a given space; and we, accordingly, find them of all sizes, from worker size all the way up to considerably larger than ¼ of an inch in width. Drones are raised in these extra large cells without trouble, and honey is also stored in them, but where they are very large, the bees are compelled to turn them up, or the honey would flow out. As the honey is kept in place by capillary attraction, if the cells exceed a certain size, the adhesion of the liquid to the wax walls is insufficient, of itself, to hold the honey in place. Where drones are to be reared in these very large cells, the bees contract the mouth, by a thick rim. As an experiment, I had some plates made for producing small sheets of fdn., having only 3½ cells to the inch. The bees worked on a few of these, with these same thick rims, but they evidently did not like the idea very well, for they tried to make worker cells of some of it, and it proved so much of a complication for their little heads, that they finally abandoned the whole piece of comb, apparently, in disgust. Bees sometimes rear worker brood in drone comb, where compelled to from want of room, and they always do it in the way I have mentioned, by contracting the mouth of the cells, and leaving the young bee a rather large berth in which to grow and develop. Drones are sometimes reared in worker cells, also, but they are so much cramped in growth, that they seldom look like a fully developed insect.

Several times, it has been suggested that we enlarge the race of honey bees, by giving them larger cells; and some circumstances seem to indicate that something may be done in this direction, although I have little hope of any permanent enlargement in size, unless we combine with it, the idea of selecting the largest bees to propagate from, as given a few pages back. By making the cells smaller than ordinarily, we can get small bees with very little trouble; and I have seen a whole nucleus of bees so small, as to be really laughable, just because the comb they were hatched from, was set at an angle, so that one side was concave, and the other convex. The small bees came from the concave side. Their light, active movements, as they sported in front of the hive, made them a pretty and amusing sight for those fond of curiosities. Worker bees reared in drone cells are, if I am correct, sometimes extra large in size, but as to whether we can make them permanently larger by such a course, I am inclined to doubt. The difficulty, at present, seems to be the tendency to rearing a great quantity of useless drones. By giving a hive furnished entirely with worker comb, we can so nearly prevent the production of drones, that it is safe enough to call it a complete remedy.

HOW THE BEES BUILD THE COMB.

In this day and age of bees and honey, it would seem that one should be able to tell how the bees build comb, with almost as much ease as they would tell how cows and horses eat grass; but, for all that, we lack records of careful and close experiments, such as Darwin made many years ago. In our house apiary, there are dozens of hives, where the bees are building right up close to the glass, at this very minute; and all one has to do, in order to see how it is done, is to take a chair and sit down before them. But the little fellows, have such a queer, sleight of hand, way of doing the work, that I hardly know how they do accomplish it.

In a little work, published by Prof. Agassiz, about the year 1867, the renowned naturalist speaks as follows about the way in which bees build honey comb:

> "The bees stand as close as they can together in their hive for economy of space, and each one deposits his wax around him, his own form and size being the mould for the cells, the regularity of which, when completed, excites so much wonder and admiration. The mathematical secret of the bee is to be found in his structure, not in his instinct."

Notwithstanding the promptness with which the folly of such a statement was at once shown up in the bee journals, it seems it never came to the eyes of the Prof., or, at least, he never deemed it worthy of notice; for, in 1873, he gave, substantially, the same thing in a lecture at Cambridge, Mass., and it was praised and published in the Tribune and other papers, and sent broadcast all over our land. I believe all the bee journals at once protested against giving the people such "twaddle" (if I may be excused for using the term), as science; but, for all that, I believe the learned professor never recalled his blunder, or even so much as admitted that he had never seen the inside of a bee-hive at all, but only guessed at it, or repeated what he had been told by some one.

About two years afterward, the great scientist Tyndall, by some means, got an inkling of the way in which Agassiz had "put his foot in it," and, in the Popular Science Monthly, wisely admitted that the bees did not stand in the cells to build their comb, but fixed them in this wise: says he, "The bees place themselves at equal distances apart upon the wax, and sweep and excavate—" etc. Now if Tyndall is teaching us other things in the same way, i. e., delivering lectures on some subject on which he knows nothing, how much can we depend on any thing he says. Oh why could not he and Agassiz, before attempting to explain the matter to the people, take the time to get a hive of real live bees, as did Darwin, and not be obliged to take any thing at second hand. If they *two*, were afraid of stings, any expert honey raiser could afford them the facilities for a safe observation and thus prevent their going into such folly, or falsehood, to call things by their right names, for they pretend to have knowledge where they have none. *Take the money and buy a hive of bees*, all ye that thirst for knowledge, and take it direct from God's own works, instead of receiving it second hand.

For particulars in regard to the North Pole, or as to whether the planet Jupiter is habitable, we may be obliged to listen to those who know better than we do; but in our own industry no such necessity exists, for a swarm of bees is within the reach of all.

When distinguished persons have visited my apiary, I have almost invariably heard them mention the great discovery of Agassiz, in regard to the way in which bees build their comb, and when I explain that it was a great mistake, they usually think that so great a man as Agassiz, and one who always went to the ants and bees with his own eyes, must have been right, and that I had made a mistake somewhere.

I have occupied all this space, my friends, just to give you an illustration of how little *real work*, some of the great scientists and lecturers are in the habit of doing, and of the importance of proving things for yourself, with your own eyes and hands.

If we examine the bees closely during the season of comb building and honey gathering, we shall find many of them with the wax scales protruding between the rings that form the body, and these scales are either picked from their bodies, or from the bottom of the hive or honey boxes in which they are building. If a bee is obliged to carry one of these wax scales but a short distance, he takes it in his mandibles, and looks as business like with it thus, as a carpenter with a board on his shoulder. If he has to carry it from the bottom of the honey box, he takes it in a way that I cannot explain any better, than to say he slips it under his chin. When thus equipped, you would never know he was encumbered with anything, unless it chanced to slip out, when he will very dextrously tuck it back with one of his fore feet. The little plate of wax is so warm from being kept under his chin, as to be quite soft when he gets back; and as he takes it out, and gives it a pinch against the comb where the building is going on, one would think he might stop a while, and put it into place; but not he; for off he scampers and twists around so many different ways, you might think he was not one of the working kind at all. Another follows after him sooner or later, and gives the wax a pinch, or a little scraping and burnishing with his polishing mandibles, then another, and so on, and the sum total of all these manoevers is that the comb seems almost to grow out of nothing; yet no bee ever makes a cell himself, and no comb building is ever done by any bee while standing in a cell; neither do the bees ever stand in rows and "excavate", or anything of the kind.

The finished comb is the result of the united efforts of the moving, restless mass, and the great mystery is, that anything so wonderful can ever result at all, from such a mixed up, skipping about, way of working, as they seem to have. When the cells are built out only part way, they are filled with honey or eggs, and the length is increased when they feel disposed, or "get around to it," perhaps. It may be that they find it easier working with the shallow walls about the cells, for they can take care of the brood much easier, and put in the honey easier too, in all probability; and, as a thick rim is left around the upper edge of the cell, they have the material at hand, to lengthen it at any time. This thick rim is also very necessary to give the bees a secure foothold, for the sides of the cells are so thin, they would be very apt to break down with even the light weight of a bee. When honey is coming in rapidly, and the bees are crowded for room to store it, their eagerness is so plainly apparent, as they push the work along, that they fairly seem to quiver with excitement; but, for all that, they skip about from one cell to another in the same way, no one bee working in the same spot to exceed a minute or two, at the very outside. Very frequently, after one has bent a piece of wax a certain way, the next tips it in the opposite direction, and so on until completion; but after all have given it a twist and a pull, it is found in pretty nearly the right spot. As near as I can discover, they moisten the thin ribbons of wax, with some sort of fluid or saliva. As the bee always preserves the thick rib or rim of the comb he is working, the looker-on would suppose he was making the walls of a considerable thickness; but if we drive him away, and break this rim, we will find that his mandibles have come so nearly together, that the wax between them, beyond the rim, is almost as thin as tissue paper. In building natural comb, of course, the bottoms of the cells are thinned in the same way, as the work goes along, before any side walls are made at all; but the manner of thinning the bottoms of the cells in the foundation, or artificial comb, is quite another thing.

DOLLAR queens are now a "dollar," and I think we can send you as many as you want, by return mail.

DOLLAR queens are *always* young queens; tested queens are not necessarily young, therefore the dollar queens have one very important advantage over the others.

OUR losses of queens, during the months of May and June, have been very heavy, especially, when a cool spell of weather ensued, but during the warm weather of July, we seldom have much trouble.

IF you would have your orders for fdn. filled immediately, and get it before you have hardly had time to expect it, *please* order our regular sized boxes that we keep on hand, all ready to ship. See price list.

WE have had one importation of queens from Italy only, during this month; nearly half of these were dead, owing to the cool weather. Another large lot is now on the way. We will do the best we *possibly can* to fill orders, and will return the money at any time when you may become tired of waiting.

WE have had one report of brood in the small section boxes. It was drone brood; every box in the frame was filled with it. The owner had put the tin separators next the side of the hive, and turned the open side of the boxes next the brood combs. To be sure you will have brood in the sections, when you do things thus carelessly.

IF you don't stop sending queens without any mark on them, to tell what they are, I do not know what I *shall* do. I have threatened several times to sell all such for hybrids forthwith; but I don't quite dare to, even if it would be serving you right. Do you "spose" we can fuss to introduce queens, and then have you write a few days after that they are *hybrids?*

WE have bought and sold hundreds of queens during the past month, and nearly every order—except for imported queens—has been filled by return mail. Many are rejoicing over nice queens at small expense in the month of June, but it has been a fearful task to send them long distances, thus early. In some cases we have sent 3 tested queens in succession, before we have succeeded.

ONE colony has already filled and sealed 40, lb. sections; the one on the scales, shows a gain of 5 to 8 lbs. every pleasant day, and I do not see but that they gain nearly as much where well supplied with sections, as where the honey is taken away with the extractor. Of course, the filled sections are to be taken out every few days, and their places supplied with empty ones, containing the fdn.

OVER 2,000 of the A B C, part first, have been sold in the first 6 months; part second, containing all about hive and section box making, etc., etc., will be ready in about 10 days. Price of each part 25c; or 40c for both in one. Bear in mind that the A B C is printed only so fast as sold; and, as it is all kept up in type, every improvement and new invention is at once added, so that it is always clear up to the times.

WE have had so many cases of suffocation in shipping powerful colonies in hot weather, that we now ship all in the Simplicity hive, with wire cloth over top and bottom; with this current of air right through, we have never had any trouble. If you want bees in the Chaff hive, you had better get the hive by freight, and we will furnish without charge, a simplicity hive without top or bottom, to send the bees in by express.

THE boys in the apiary were just looking a good deal troubled, because they had hived a swarm three times, and then they would not stay. Said I,

"Did you give them a frame of unsealed brood?"

"Oh no! we forgot that part of it."

They were given the brood and hived again, and then they stayed. We have now 260 fair colonies. Most of them were made early in June, to accommodate the early queens sent in; and now, the young bees are just getting ready for the basswood.

HAYHURST, of Kansas City, Mo., and Henderson, of Murfreesboro, Tenn., seem to be rather ahead in preparing queens for shipment. We have received packages of from 15 to 25, from each of the gentlemen named, without so much as a single dead bee among the lot. Several others have done nearly as well.

At least 9-10 of all the queens we have tested in our own apiary have proved pure; so there is little inducement for purchasing tested queens. As a consequence, hybrids are scarce; and we do not get enough to fill half of our orders. It is the same with the black queens; we send out all that are sent us at 25c, but of course no one can raise them for that price.

A GREAT many are asking me to buy their bees. As I cannot possibly reply to you individually in this matter, I will try to do so in a general way. To buy bees largely will require a great amount of capital, and it will be a very risky business; however I will try it in this way. I will pay $5.00 for a good colony of Italian bees, with 10 metal cornered frames of comb filled with the usual amount of brood, delivered at our R. R. station. In any other kind of frames, the price will be $4.00; and for black bees, $3.00. You may ship them in any kind of a hive or box you choose, but as every extra lb. adds to the express charges, which you are to pay, I would suggest that they be put in a light strong box, with the top and bottom of wire cloth. The Express Co's will return you the boxes and wire cloth without charge.

WE have so far recovered from the severe chastisement inflicted by the "Growlery," that we are able to fill all orders almost the day they are received, and I trust with but few mistakes. The brick factory is located on the 17 acre honey farm, the cellar dug, and the stone for the foundation partly on the ground. A side track from the R. R. is to-day being laid, that our lumber, tin, wax, etc. may be unloaded directly at our doors; while the apiary runs back into the grounds, where there is a stream and a bit of natural woodland. This stream is to be made into a pond for a pleasure boat in summer, and for skating and ice for the wax works in winter. So much for business.

One of the buildings formerly used for the Fair is to be our chapel for our Sabbath morning Bible class, and we are just now digging a well, that is to supply a constant stream of water for the drinking tank to be placed in front of the factory. Every body is to be induced, if possible, to drink pure water, and a rope of moral suasion is to be put around the saloon across the way; and——Tut! tut! tut! Novice; before you find very much fault with your neighbors, had you not better look after your "Growlery" at home?

PROF. COOK's new Manual of the Apiary is out, and a very pretty book it is. It is brimful of pictures, and they are not only excellent in execution, but are chosen from subjects that will be most sure to interest bee-keepers of the present day. The paper and printing are beautiful, and friend Cook's style of writing is much like his way of talking, so kind and genial, so friendly and considerate of the feelings of all, that I feel like thanking God that we have such a man as Prof. Cook, to take hold of the subject of bee-culture, in this 19th century, in the masterly way in which he has done it. This is my verdict on reading it over.

"Of course then, you will advise all to buy this book, and to buy it in preference to all others, since it is new, and quite up to the times?" perhaps a thousand or two of my readers will say. My friends, I know from past experience, that it is my duty to be a little careful, how I answer this oft repeated question, as to what book you shall buy. If I could have my own way, I would have you read all the bee books we advertise for sale; but a great many of you say you have not the money for all, and still more say they have not the time to read them, and quite a good many, after reading several authors, get the whole so mixed up, especially where conflicting directions are given, that they seem to be worse off than if they had read only one brief treatise, and followed it.

In answering the questions asked by thousands of beginners, I have found this latter trouble, perhaps, the worst of them all.

This is especially the case with my way of treating the subject of bee culture. I have not followed the old stereotyped ways of doing things, and the simple style of hives, extractors, section boxes, etc., that I have introduced, were made with a view of having the different operations in bee culture follow along in one regular system. If they are used as I advise in the A B C, you will find it straight, plain sailing; but if you attempt to mix them up with all the various plans, hives, and machinery afloat, you will come to much confusion, if not to "Blasted Hopes." While I hold myself responsible for all the teachings of the A B C, I cannot be responsible for those of friend Cook's Manual. Perhaps, my way of doing things is a narrow and contracted one, but I cannot see how I can well help it, with the sea of work that looms up before me. If you choose the manual for your guide, you will have to go to friend Cook with your questions. If you wish me to advise you at every step, I prefer you should follow A B C; and by this, I do not say that the latter will be a better work, by any means; for friend Cook, with his superior education and training, is probably a better writer than I can ever hope to be, although I may excel him in mechanical work, and inventive genius.

I cannot but feel that my friend has erred sadly, in so vehemently defending a few patent hives, smokers, etc. In this age of progress, these things are so rapidly passing away, it seems a pity, to have such a book marred by their unsightliness. In defence of patents, friend Cook states Mr. Weiss to have been the original inventor of rolls for making fdn., and that the invention was taken from him without so much as a word of thanks. On page 29, of GLEANINGS for 1876, I made, as I fully believed, the first suggestion that fdn. should be made with rollers; and stated that a mechanic was then at work on a pair of rollers for me. This statement went to N. Y., and all over our land, yet not a word was said of my not being the first one to suggest that fdn. should be made on rollers, in sheets, as I then expressed it, a "mile long". Before deciding on rollers, I wrote Mr. Long that his sheets, 5 by 16 inches, were too short to fill an L. frame, and asked if he could not make them just *one inch* longer. This he said he could not do, for Mr. Weiss' *plates* were only 16 inches long. When it was afterward claimed that Weiss had rollers before mine, I wrote to Mr. Sisson who had charge of the *Magazine*,—and I have his letter now, assuring me that Weiss used plates, for he had them in his possession. In giving the world rolls to make their fdn., neither Mr. Washburn nor myself ever had the remotest idea that John Long's fdn. was made on rolls. If $100 is a great price, why has not Weiss or some one else during all these years furnished them cheaper. You are all welcome to all the secrets in mechanics, or anything else, I have in the world; and where I have borrowed the idea of others, I believe I am ready to pay up. The Manual figures, and thereby recommends, a $40 machine. As quite a number have been deluded, by false promises and statements, into sending for these, I feel it a duty to publish one of the letters I have received in regard to them.

A. I. ROOT.—Dear Sir:—

The machine came safely to hand. You ought to have a medal for getting up an article to work *so* nicely. It is a satisfaction to do work with it, and *more particularly* so, after having *bothered* with one of those Bourgemeyer *things*.

J. OATMAN & SONS.

Dundee, Ill., June 19th, 1878.

I feel that friend Cook has made a bad mistake also, in regard to dollar queens; it is probably from some misconception. All honorable queen breeders, and I hope and believe all who advertise in our list are such, rear their queens from imported stock and rear them the very best they know how. The idea that these queens are in any way inferior to the tested ones, or to the best that can be bought, only that they are *untested*, is, I can not but feel, an unkind insinuation on the large list of those who rear queens. With the ample experience I have had in the matter, I should say that dollar queens might well be ranked with fdn., as one of the great blessings to the A B C class of bee-keepers of the present day. Everybody now tests their own queens, and a great amount of fault finding and dissatisfaction is avoided. People do not long continue to buy that which does not pay, yet the dollar queen business has rapidly increased year after year, and now the traffic amounts to thousands of dollars in a single week.

QUEENS BY MAIL.

IT seems that the P. M. of Boston, Mass., has decided with others, that they are at liberty to mail queen bees, as will be seen by the following:

The eight queens should have reached you last week. Four of them we mailed at Boston to gain time. On receiving your postal stating you had received only four, we made inquiry at the Boston office and found they had been thrown aside as not mailable. We carried the matter to Post Master Tobey, and he agreed to direct the clerks to forward such matter in future. We mail you the queens again to-day, supplied with fresh honey and bees, and trust you will receive them in good condition.

C. W. & A. H. K. BLOOD.

Quincy, Mass., June 24, '78.

ANOTHER WAY TO MAKE FRAMES.

AFTER carefully reading your instructions for making wooden frames, I concluded that your plan is not so good as the way in which I make them; and, as others may think so too, I request you will give this a place in "Our" paper (if you think it worth the space).

My top bars and ends are ⅜ thick. Boards of that thickness are cut off, of the right length for top bars, and a groove cut across the pieces at each end ⅛x⅜, and 11-16 from the ends. The pieces are then ripped up ⅞ wide, and the comb guides put in, in the ordinary way. The end pieces fit closely into the grooves, so that a frame, when put together, can be handled without falling to pieces, before it is nailed. Lay a top bar (after putting in a comb guide) on the bench, and, with a light hammer, drive the ends (which are perfectly plain, except that they have a slit in one end to receive the comb guide) into the gains in the top bar, and while in that position, nail on the bottom piece (mine are ¼x⅞). Then turn the frame over and nail the top, driving two nails into each end. Sight the frame, to see if it is true, or, as the carpenters say, "out of wind," and if not, drive the proper nails a little deeper, so as to draw one side a little tighter to the end piece. In this way, a frame can be made true, although the pieces of which it is made may be a little warped or twisted. To bring it square, have a piece of board, ¼ in. thick, and a little narrower and shorter than the inside of the frame, fastened to the bench. It should be square. Upon this the frame can be tested very quickly and brought just right. If the end pieces are sawed on a Barnes saw there will be little difficulty in this respect. I put the comb guides so that the fdn. will be in the centre of the frame. A word as to fastening the fdn. Take a board ½ inch smaller each way than the inside dimensions of the frame, and of such a thickness that, when a frame is placed over it, the upper edge of the comb guide will be flush with its upper surface. Rabbet one edge just the depth and width of the comb guide, Nail the board to a table or to another smooth board, and at the opposite side from the rabbet, nail a little block so that, when the frame is in place, the bottom piece can be sprung over this block, and hold the frame snugly in place, with the comb guide in the rabbet. Lay your fdn. on the comb guide, and on it lay a thin strip as wide and long as the fdn. This pressed firmly down will prevent the fdn. from kinking while being rubbed tight with the warm iron rod. I have a quart tin can placed over a lamp, filled with hot water, and keep the irons in it. With this arrangement, the fdn. can be fastened in the shop, the operator can keep cool, and the cook, in a good humor.

O. BRUMFIELD.

Brumfield Station, Ky., June 7th, 1878.

DO BEES CHOOSE THEIR HIVES BEFORE SWARMING?

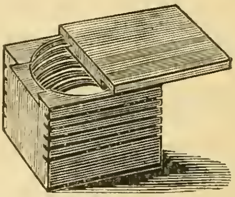
SOME claim that bees which go to the woods have their trees picked out. My father was a great bee man, and I have followed swarms and hunted bee trees for 18 years. My experience teaches me that swarms hunt their trees as they go. I have seen them spread 15 rods and search as they went. I noticed two swarms in particular, one had gone to one side and past the tree, but I saw a few bees flying round the hole, and the rest drew up and went in. The other searched through one body of timber and went to another. When they had got part way through they gathered to a tree, then started again, and went slow enough so that I could watch every move they made. When they got to the edge of the woods, they gathered to a large oak. I noticed a few bees flying round a limb of an other oak, and they kept gathering till the whole swarm came. I cut the limb and took it home. In transferring, I found old comb of a swarm that had died. I have found a great many trees that had old comb. I have seen bees flying round holes in trees, when some would think they were hunting homes; I think they were hunting water. I have cut trees where they were flying from morning till night, and found nothing but water in them.

Ashland, Ohio, June 10th, 1878. T. I. ELLIOTT.

I am inclined, friend E., to think you are right, and that bees do very often hunt up a location, after the whole swarm has got into the woods; but, even in that case, we might fix our decoy hives in such a way as to attract their attention, can we not? the idea that they go into these hollows for water is also a shrewd one; from the way they visit stagnant pools, holes in the ground, etc., I should think it quite probable that they would go into hollow trees that might contain water. It would furnish them a nice place secure from wind, and the rotten wood would give them a secure foot hold, where they might drink "their fill." I know bees are very partial to trees that have old comb, where swarms have habited before.

QUEEN CAGES.

THERE is one trouble with our candy queen cages, and that is, when we wish to release a queen, we have got to wait the pleasure of her ladyship in coming out. This is a small item, but where one has hundreds of queens to introduce in a few days, as we do now, it is quite a loss of time. A cage that allows the whole top to slide off is better, because we can pick the queen right up, and go on. Another thing; it is quite a difficult matter to make these queen cages for 5c, or $4.00 per hundred. Well, you see I got an idea in my head, that a cage might be made entirely by machinery, without any hand work about it, and I "walked around the stairway" many times over it, but could not get it quite to satisfy me. Finally, some little pine cages came one day, in the mail, containing some black queens. It was the idea I wanted exactly; and, just as soon as I saw them, I told a clerk to write that man that I would give him $25.00 for the privilege of making his cage. I was so busy looking at the cage that I did not notice the name at the end of the letter, until I came to pay the $25.; and behold, it was our friend Scoville, who gave us the wire loop a few months ago. He failed in getting the $25. chaff hive, but got it on the queen cage. Below I give you a picture of it.

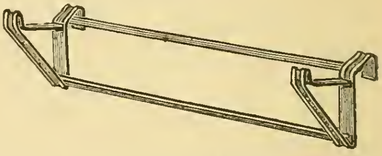


SCOVILLE'S QUEEN CAGE

Instead of making them of pine, we will use basswood; and to have plenty of room for long distances, we will get them out of stuff 2 inches square. The basswood is much less liable to split, and is very light. The strips are planed accurately, then bored; the saw cuts for ventilation are made with a gang of saws; and lastly, the cover is made and pushed in the stick, 4 or 6 feet long. The cover, as well as the recess for it, is made by a cutter head, and a saw sharpened on a bevel. After the work is all done, the cages are sawed off. The candy is best poured into the cages, while they are in the long stick. With these, it is poured so as to cover the whole bottom. In mailing them, be sure that abundance of ventilation is given from *each side of the cage.*

OUR COMB HOLDER.

ON page 214, I spoke of something to hold the first frame; well, since then, I have "walked around the stairway," and this is what came of it.



It is to be hooked over the edge of a Simplicity hive, and then when the first frame is lifted out, you are to hang it on the two projecting arms. These are slightly turned up, as you will notice, that the frame may not be easily pulled or slipped off, and then if you are disposed, you can slide the remaining frames along, so as to get at any particular one, with ease; or if you wish to cage a queen, or to introduce a queen, you can have both hands to work with, while your frame is securely held just before you as you want it, with no tumbling down, or getting the new combs out of true. It can be used in the Chaff hive, when the upper story is empty, by hanging it on the *inside* edge; but I have not as yet studied up any plan of having it catch on the outside, as conveniently as on the Simplicity hive, without any additions or changes. After using it about the apiary, I am so well pleased with it that I think we shall offer them for sale; they are made of folded tins, and can be sold for about 25c; if sent by mail, 35c.

Heads of Grain,

From Different Fields.

COMBINED FEEDER AND DIVISION BOARD.

SEEING so many devices for bee feeders in GLEANINGS, I wish to say a word on the subject. I think there should be a stationary feeder in every hive, always in place and ready for use. As your chaff division boards are coming into general use, I think if you could make the top bar thick enough to be grooved like the Simplicity feeder, you would have a feeder that could be filled without being removed from the hive, and the bees could take the feed without getting on top of the quilt or out of the hive. FRANK MCNAY.
Eau Galle, Wis., June 20th, 1878.

The plan you mention is a very plausible one, indeed, and but for two objections. I think might come into general use. Cutting a feeder in the top bar would spoil, or partially spoil, the efficiency of the division board for cutting off frost, and just near the top bar, where we need it most. Secondly, we should have to let the bees into the feeder near the top of their brood nest, which would allow the warm air to escape. Last fall, in building up nuclei and rearing queens late in the season, I found that we succeeded far better, when all openings above were tightly closed and waxed fast, and the bees compelled to take their feed in at the entrance, or at least through an opening around the division board, near the entrance. A feeder might be made in the lower part of the division board, but I fear it would interfere with the division board for wintering, as mentioned above. Of course the two can be combined, but combination tools and implements are not, as a general rule, well liked in the long run, and are not, I believe, generally profitable. Many times you want a division board and do not want a feeder, and vice versa; now, if you have a feeder in all your division boards you have so much capital lying idle.

I never saw such nice work from bees as they are doing this summer. We have made a lot of Simplicity hives according to your directions in GLEANINGS, and like them the best of any we have ever seen or heard of. We have now some 1 lb. section boxes filled with honey, and every one says they never saw the like; they are surprised that the bees do work so true and perfect in such small boxes of 1 lb. each. JOHN DIEFFENBACH.
Crosskill Mills, Pa., June 17, 1878.

The nicely filled and capped, 4¼x4¼ sections look quite enticing. The only trouble is in getting enough of them. Fdn. is a success with us; no sagging, no trouble from surplus of drones when used in brood chamber. G. M. COVERT.
Sellersburg, Ind., June 17th, 1878.

The smoker you sent me is splendid to conquer bees; I have transferred two swarms and overhauled a number of hives, and have no trouble in working among them. When I have my little smoker close at hand, well charged, I have no use for my bee veil or rubber gloves, and am in a good shape to do the work before me. It is not very pleasant to handle bees with a hoodwinker on, and shackles on your hands. DANIEL DYSINGER.
Memphis, Mich., June 6th, 1878.

There is a gentleman living in my neighborhood, who is agent for N. C. Mitchell's adjustable hive, and claims that Mitchell has a patent on his hive running 17 years. What I want to know is, what does Mitchell claim he has a patent on? It cannot be on the movable frame, nor on the division boards; for they have both been used in the Langstroth hive for a number of years. When it comes to the hive, one has a right to make that any shape he pleases. Please answer. J. G. TAYLOR.

Mitchell's claim is as follows:

1. *The herein-described bee-hive, consisting of the comb-frames C, partitions D, provided with the rubber or woolen strip b, and lugs a, sliding platforms c, and jars E: when the several parts are arranged to operate substantially as herein described, and for the purpose set forth.*

2. *In a bee-hive constructed as herein described, the partition D, provided with the woolen or rubber strip b, and lugs a, substantially as and for the purposes set forth.*

You will see from the above, that the hive Mitchell sells, does not contain the "rigging" he has patented at all; and, if it did, he could no more prevent any one from using rubber or woolen strips on a division board than he could patent the air we breathe. Both are old devices. The whole matter is such "arrant nonsense," I really feel it a duty to decline wasting any more space with it. If you will hand your money over to such bare faced thieves as Mitchell and his class, in answer to their threats of prosecution, I do not see how I can help you. His excuse that he cannot prosecute *me* is so flimsy, I can but wonder that people will listen to it enough to write me about it. With all his threats, I cannot learn that he has ever prosecuted anybody. The Simplicity hive was invented and fully described in the *A. B. J.*, years ago, and there is not a word of truth about its infringing on any patent at all. The bevels, the metal rabbet, and the metal corners are my own invention; the latter were patented, and afterward given to the people, as you will see by every one of our price lists. These last remarks are to answer a great many other letters of inquiry.

COMB FOUNDATION.

Last season, I suggested to one who was arguing against fdn., that he might as well try to stem the current of Niagara; and the testimony now seems ten fold greater than last season. The flood of letters in its praise is so great, that we usually pass them by unheeded. The following is only one among the many:

To say that I am *well* pleased with the fdn. does not express my appreciation of it. I think the 5 lbs. I got before has been worth 8 or $10.00 to me. I have used it in the brood frame. M. E. PARKER.
Somerset, Ky., June 14th, 1878.

For several weeks, it has taken about 1000 lbs. of wax a week, to keep our wax room running, and our customers, without a single exception that I know of, are uproarious, if that is the right word, in their expressions of satisfaction at the way in which the bees take to it.

INTRODUCING.

I wish I had 20 more Italian queens safely introduced. I took out a frame of comb covered with bees, and put the "queenly" bee you sent me among them, and they all began to pay her homage. I also put in the 9 or 10 "bloods" you sent with her, first gorging them with honey, and saw them flying from the hive at work, in an hour. Looked an hour after introducing, and found all right. C. A. ELLIS.
South Albany, Vt., June 13th, 1878.

During the height of the honey season, we can often introduce a queen at once in the manner in which you did, but it is always risky, unless the colony is watched several hours afterward; for they often discover the difference and attack the queen, even after she has been several hours well treated. With further experience, I am more than ever convinced that no plan of introducing is sure, unless the bees are watched after the queen is released. Waiting 24, 48, 72 hours, or even a week, does not make the matter sure, for we have colonies every little while, that will not receive a queen at all, in spite of all we can do; and I have thought the best way, many times, is to give them brood, and let them rear queen cells. There is no need of having a queen stung, if we have our smoker in readiness, and look after them, but it may require considerable patience, and repeated trials. Tearing down all their queen cells, I have thought, sometimes seemed to make them more respectful to the new queen, but I am not clearly satisfied of this. As it is quite an item to get the queen to laying just as soon as possible, I would introduce them immediately, where it can be done. I would not undertake it however, unless the bees seem gentle; for a hive of vicious hybrids will sometimes attack a queen so fiercely, that a new hand at the business might be unable to rescue her before she was stung.

THE 1 LB. SECTIONS IN TEXAS.

Here we are again, with our eyes almost smoked out with rag smokers. We have been hiving, robbing, driving, and transferring bees, ever since the middle of March; and not one dollar have we had to spare to buy a smoker until now. Saturday last, I took to our little village, Lancaster, 8 full frames of nice honey in a Simplicity cap, i. e, the upper story; I set it in my wagon just as it was lifted off, and took it to market in that shape. Well, it just took every body's eye that saw it. They had been buying honey at 12½ cts. and I got 20 cts. for mine; so, you see, my bees have enabled me to buy a smoker. Enclosed find $1.00, for which send by return mail a Simplicity smoker, which I need very badly with my now 36 hives of all black bees. After burning up the last rags this morning, my wife said I just had to send for a smoker that was all. So you see, I had to do it.

Bees are doing finely here this season, except that they are swarming too much. Oh, how much I needed a good lot of foundation and an extractor, but money was lacking.

I thought I would not say anything about the sample section box and Simplicity bee feeder you sent me, until I had tried them. Well, I don't know whether I want any better feeder or not; it suits me at present. The section box well filled with honey created a great deal of excitement round about here; some say, men are in small business making such, &c.; but I expect to try 1000 next season.

Now remember to send the smoker "you prefer" to

E. J. ATCHLEY.

Lancaster, Texas, June 10th, 1878.

I have a queen that was hatched out in a 2 frame nucleus hive, 3 weeks ago. I do not see any evidence of her laying yet, and yesterday, my son told me that he saw her go out at about ¼ past one; he watched the hive for ¾ of an hour and did not see her return, but I found her there last night. I might say that drones were flying very plentifully during the day. I now wish to know whether, in your opinion, she is too old or not for fertilization?

I would also like to know if it is necessary, in taking a frame of brood from one hive to strengthen another, to brush off every bee before you put the frame into the one to be strengthened?

The bees I bought of you are doing well; but there is no prospect yet of an increase. I therefore wish to take some away from them to increase the nucleus hive, and would like your answer by return mail, so that I can govern myself by them. If my queen does not turn out well, I shall have to send to you for one. All who have seen my bees praise them up very much, for their good manners in being peaceably inclined.

WM. SHINTON.

Paterson, N. J., June 13th, 1878.

It is somewhat doubtful, but I think I would try her another week, and if she does not lay at 30 days old, you had better kill her. Before wasting valuable time with such a queen, I would toss her up in the air, if she flies all right, let her remain; but if not, destroy her at once. This is a great saving of time, with any queen whose wings look at all doubtful.

During a brisk yield of honey, I seldom take the precaution to brush off the bees from a comb that I wish to give another colony to strengthen it, yet it is always attended with some danger to the queen. If you look at them after an hour or so, and if there is any quarreling, give them a brisk smoking, there is seldom any danger. You need not hesitate if you are where you can keep an eye on them. It is much like uniting bees in the fall.

I am very glad to hear that the bees please you.

DANGER FROM STARVED OUT SWARMS.

Honey prospect is poor in this country; it is very rainy and cold, and bees cannot fly more than half of the time. On the 7th or 8th, in the morning, I had a swarm of bees come into my bee yard and light on two hives that had bees in them. I saw them about 8 o'clock, A. M.; they were on the front of the hives and were going in, and the bees of the hives were killing them as fast as they could. I opened the hives and gave them a smoking, and then gave them a feed of honey, and left them until noon. When I went to the hives, I found the queen that belonged to one hive dead in front of the hive, and found, in the hive, a very small young queen that came with the strange bees. Is this some new thing?

VERY YOUNG BEES SEALING QUEEN CELLS.

I put a comb, with queen cells all sealed except one, into my nursery. Some working bees hatched out first, and when they were less than 24 hours old, they sealed the open queen cell over, the same as old bees would have done. I took the young bees out every morning, so I know that they were not over 24 hours old. Now, do you think that they seal brood in the hive when they are too young to fly? I do.

W. A. EDDY.

Easton, Wis., June 10th, 1878.

Such cases are not unusual, and where a colony comes into your apiary in this way, you should endeavor to prevent their going into any of the hives, by moving such hive away, and giving them a comb of brood and honey, in an empty hive, in its stead. By acting promptly, you can make excellent swarms of these starved out fugitives, but as they are usually found after the honey season has closed, and generally come empty of stores, they are almost sure to be stung when they try to force an entrance.

Young bees just hatched will almost invariably proceed to rear queen cells, if there are no others to do the work, and I have raised as fine queens in this way, as in any other, but I should hardly wish to recommend it as a usual mode of proceeding.

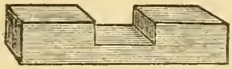
To-day, June 7th, is the first day, so far this season, that bees have gathered honey freely. They come in now heavily loaded from the white clover, which has been in bloom for some time; but the weather has been so backward, cold, wet, and windy, that bees could do nothing. The nights and mornings, now, are so cool, that bees do not commence work until about noon, when they should be out at sun rise. I was about to apply for space in "Blasted

Hopes" but have now concluded to wait awhile. We may yet have a fair season for honey. I have my sections on the hives, but the nights are so cold they make slow work of it. Friend Root, are you not a little hard on our friend J. M, R. of Ala., in the Growlery Department? From his letter to you, *I* would take him to be a beginner, and *not posted* in fdn. No doubt, he thought it was like natural comb, already built out. J. M. **Brooks.**

Elizabethtown, Ind., June 7th, 1878.

Perhaps I was a little severe on our friend, for I had no doubt but that he was a novice, like the rest of us, in, at least, some things; if he so understood it. I beg his pardon. The moral I wished to point out is, that we are often to hasty in deciding a thing or person to be a humbug, just because, from our point of view, such seems to be the case; every body should be granted, at least, a hearing, before we decide to condemn them.

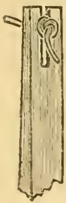
I don't know that I shall tell you any news, but I will tell you how I fixed those metal corners. I put on a few, and, once in a while, I would bulge one out a little. Thought I, that don't just suit. So I got a hard wood block, and cut a groove across it, so that the corners go into it, with a "squeeze and a grin", just as deep as the frame. That holds them close to the wood, giving them no chance to spring away, and I don't know as I want any iron block.



BLOCK FOR PUTTING ON CORNERS.

Now put a screw through this block, and fasten it to a good solid lap board, turn it just so as to be handy, then, on cold stormy days, seat yourself by the stove and work just as lively as you please.

FIXING THE SPRING ON FOOT POWER SAWS.



I fixed the spring of my foot-power saw, by cutting a slot from the hole up to the top, and then putting a washer on the cord, so that, when not in use, I can just slip it out of the spring, and that lets the spring loose. Perhaps this would not do for all, but it suits me very well. V. W. **Kerney.**

Shirland, Ill, Feb. 14th, 1878.

In a former circular, I spoke of using a wooden block in the absence of an iron one. A block of hard wood answers just about as well, but of course, will wear out sooner. Your device for retaining the elasticity of the spring, in the foot power saw, is excellent. We have been in the habit of turning the spring the other side about occasionally; but this process soon causes the spring to break. Your plan is the better one.

CAGING QUEEN CELLS.

I wish to know if you can furnish cages to cover queen cells to use instead of cutting them out. Geo. J. **Elam.**

Marlin, Texas, June 10th, 1878.

We can furnish them, but I do not believe they can be made to be a success. The idea has been a great many times taken up, but always abandoned sooner or later. Unless a cage is so made as to reach clear through the comb and is covered with another cage on the opposite side, the bees will very often cut it entirely out; and even then, they often make such excavations in the comb, in their efforts to remove the foreign substance, that the mutilation, and the brood destroyed, is of almost as much value, as the queen saved; besides, what are you going to do with a queen hatched in one of these cages? If taken out just the moment they are hatched, they can be introduced generally without trouble; but if allowed to remain until they get acquainted with the bees, they are, so far as my experience goes, almost useless property. I have never succeeded in introducing a virgin queen by caging.

REPEATED SWARMING OUT.

I have a hive that swarmed on the 6th of June; I hived the swarm, and the next day it came out again. I hived it again and gave it more room. The next day it came out again, but part of the swarm I kept in the box by throwing water on them. The rest went to the woods, and clustered on a tree 50 feet high. I cut it down; about half of the bees remained "down", and the rest clustered again on a big white oak 75 feet high. What remained below I brought home the next day, and put them with the part that remained in the hive, and they are now doing finely. Now what was the cause of their going off? One-half are still in the woods hanging to the limb of that tree. William A. **Roln.**

Canton, Ohio, June 13th, 1878.

I should guess, my friend, that your swarm was a second swarm, and contained several young queens, as is often the case, and that the bees in the woods had one of these queens. They will rarely stay out over night in that way, unless a queen is with them. Still, this may be a mistake, for bees do, at times, act very strangely, when under the swarming impulse. A frame of brood, would have saved all the trouble, and I should never think of hiving any swarm, without first getting a frame of unsealed brood, to give them a start, and to hold them securely from all such temptations.

BLACK QUEENS.

I would like one black queen, just as black as you can make her. I have seen enough of Italians; think them too closely allied to the "Old Boy" himself. R. **Nickerson.**

New Panama, Conn., May 28th, 1878.

When I thought of offering black queens for sale, it was with no idea that anyone would prefer them to Italians; but sure enough, we have had several customers wanting just them and no other. One friend to whom we sent a hybrid, because we were out of blacks, returned her, saying she would be of no value to him, and that he must have a black queen. Aren't we funny, some of us?

GRAPE SUGAR AND FDN.

I have used comb fdn. and grape sugar, and find them both good things. I don't have any trouble with the comb fdn. sagging and bulging and breaking down. It works splendidly for me.

Harlan, Iowa, June 3d, 1878. W. C. **Forest.**

HOW TO GET RID OF DRONES.

The queen is received. I placed her in the hive the 9th, liberated her the 11th, and found her all right on the 13th of this month. She seems to be very small. I can buy black bees, in box hives. How can I dispose of drones, without transferring until after they have swarmed?

Elmer S. **Goodrich.**

Lebanon Springs, N. Y., May 21st, '78.

Queens are almost always small after taking a long journey, but when they have been a few days in a strong colony, I think you will find them of the usual size, although there is quite a difference in the size of queens. It does not always follow, that the largest are the most prolific, for, on looking up queens where there is an unusual amount of brood, we *sometimes* find their size quite moderate. I think transferring would be the readiest way of getting rid of drone brood, and if the hives contain a great number of live drones, I guess you would better fix the entrance so the worker bees can get in, but not the drones, and then take all the bees out of the hive and shake them in front of the entrance; when all have gone in except the drones, the poor fellows may be killed in some easy way, that you probably can invent. It is an easy matter to adjust an entrance between two, straight, wood or metal bars, so as to keep the drones out. Wire cloth, made with meshes exactly right, would answer the purpose nicely.

HOW THE FRAMES OF CANDY WORKED.

The one copy of your GLEANINGS in Bee Culture that you sent me, I read thoroughly. I would not take one dollar for what I learned about the cultivation of bees, from that one journal. I made a candy slab as you stated, and spread the cluster of bees, and hung it in the centre, and they all went to licking. In 2 or 3 days I uncovered them and looked in, and they were *still* licking. **M. D. TYLER.**

Manchester, Ohio, Dec. 24th, 1877.

FOUNDATION VERSUS NATURAL COMB FOR STARTERS.

I furnished two section boxes, one with natural comb, the other with fdn., and find that the bees have commenced working well on the fdn., but have not yet worked on the natural comb. I make this statement thinking, perhaps, it may be of benefit to you, or to some of the subscribers.

A. B. SEIDNER.

New Springfield, Ohio, June 7th, 1878.

SMOTHERING BEES, ETC.

I am well pleased with the frames, and the smoker is just splendid; but the express charges, $1.25, just half the price of the frames, I think were high. I had 9 colonies in box hives, so as soon as I got some of the frames ready, I went to transferring; had 3 transferred all right, when robbing set in. Well, I thought I would "fix 'em," so I closed the entrances, and did not look at them for some time (a few hours); and behold! one of them was smothered; bees, honey, comb, and all were in a pile, nearly boiling hot. The other two were all right. I guess I won't shut out robbers any more.

JOEL TILMAN.

North Manchester, Ind., May 15th, '78.

I know it is expensive, getting such goods by express, and the only remedy I can offer, is to order a little sooner, in larger quantities, and by freight. We are doing all we can, to get lower rates by express, and have a clerk whose business it is, to examine the routes and decide upon the cheapest and best way for you to get your goods.

Many cases of smothering, in just the way you mention, are reported every season; beware of closing hives in hot weather, unless they have ventilation by an ample surface of wire cloth, or something equivalent.

SURPLUS, AND HIVING SWARMS IN THE CHAFF HIVE.

Is not the top part of a chaff hive most too large for a small swarm? How do you contract, if necessary? Which is the best way to hive a swarm in a chaff hive? I am going to be absent about a month. Will have to leave care of bees with my son. It is for his benefit I wish your advice. **SAMUEL C. WARE.**

Towanda, Ill., May 29th, 1878.

I shall be most happy to tell the boy, that a small swarm should be built up to a large one, before they are allowed to go into the upper story. If the weather is warm, I do not think it will do harm, to let them have the whole upper story at once, but if it is not, I would turn back the cloth sheet, and put in a division board in such a way, as to let them into only as much of the upper story as they could fill. A chaff cushion might be put in the vacant side, until they are ready to occupy the whole upper story. I would hive a swarm in the chaff hive, by simply shaking them in front of the entrance; if the weather is very warm, you might raise the cover slightly, to give them more air, but do not let them get into the upper story, until they have got their combs well started below. Keep them down, by the cloth sheet.

GLASSED AND UNGLASSED SECTIONS.

We have sold several tons of glassed sections for an eastern house at 12 to 15 cts. for buckwheat, and 15 to 18 cts. for white honey. We also sold 22 cases of *white* honey to a Chicago house at 15 cts.

Yours without glass would, in our estimation, bring 20 to 22 cts., but will try to get more if you send it. We will give you 20 cts. per lb. here, or sell for you as usual, whichever you prefer.

STAIR & KENDEL.

Cleveland, Ohio, May 14th, 1878.

EXTRACTING AND CROSS BEES.

I wish to ask you or your correspondents, if it makes bees crosser to extract than it does to "box" them, provided you have an experienced hand with the extractor, who will smoke them until they hum.

West Grafton, N. Y. **W. L. COGGSHALL.**

Without doubt, the bees are many times made cross, by the use of the extractor; but, if it is properly used, there need be no more stinging than when the apiary is worked for box honey. And proper use does not mean smoking them so they "hum" either; for I do not believe in using smoke while extracting, as a general thing. The work should only be done, while honey is coming rapidly, and the hives and frames should be such that no bees are ever killed, during the necessary manipulations. If you can avoid all robbing, you will not have any trouble with cross bees; but, if you get the robbers to following you about from hive to hive, you will soon have cross bees, to your sorrow.

QUEENS, BY MAIL.

Please let us know, through GLEANINGS, what the post office law is about sending queens by mail. The post master, at this place, refuses to mail them. Have I a right to the use of the mails in sending queens to my customers? or have I no right? Let us know just what rights queen dealers have in the matter, and oblige many. **N. S. AMES.**

Napa City, Cal., May 25th, 1878,

There is no law against sending queens by mail, as some have stated it, but there is a ruling to the effect that bees are unmailable matter. This ruling was made, I believe, by one of the assistant P. M. Gs., for the reason that the officials would get stung, if bees were so permitted to go, and also that the honey sent with them might daub the other mail matter. With strong, secure cages, the former objection is removed, and with the use of the candy instead of honey, the latter is removed. If I am correct, every P. M. has the privilege of using his own judgment to a certain extent, in allowing the public to use the mails for their accomodation. Accordingly our Medina P. M. has, all along, told us we might send our queens by mail, if they were carefully and strongly put up, at least until positive and special orders were given to the contrary. I believe nearly all the post masters in the U. S. have adopted a similar course, and if you will show this item to your P. M. and explain the matter with one of the candy cages, I am inclined to think he will do the same. It is a very difficult matter to make these rulings such that they shall do exact justice in all cases, and some very amusing dilemmas have occurred in trying to obey them to the exact letter. Mr. James Vick has given us many illustrations of this, but, while he has shown the absurdity of trying to comply with these requirements, I fear he has not always made it plain that he could have done any better, had he been compelled to take the places and duties of these much blamed officials.

SMOKERS.

I have now used the Improved Quinby smoker two weeks, and am led to believe that it is equal to the Bingham, and that is praise enough.

Lansing, Mich., May 1, 1878. A. J. COOK.

A GOOD DAY'S WORK.

I will give you my day's work for to-day. This morning I mounted my nag, rode 5 miles, transferred two hives of bees, and got one dollar for it; got one subscriber for GLEANINGS; went half a mile further, transferred one more swarm, and got half a dollar for that; got my dinner, and started home; went about one-fourth of a mile, found a fine colony of bees, in a tree, about 15 feet from the ground, working out of two holes about 3 feet apart. "How is that for high?" Please find enclosed 60 cts. for GLEANINGS, one year. This makes 12 subscribers I have sent you this year, and I am the only one out of the 12, that ever took a bee journal before. LEWIS NIGH.

P. S.—I forgot to tell you, in the right place, that I got home at half-past 3 o'clock.

Lamar, Mo., May 23d, 1878.

I can imagine, my friend, something how you felt as you rode home. If we could succeed so well every day, we would hardly be fitted to appreciate a good day's work, and so, I suppose, it is best that we have a great many days when everything seems to go backward instead of forward, in spite of all we *can* do. Who can tell of a better day's work than friend N. made? Now do not be afraid to talk out, boys? He is probably an enthusiast, or he would not have got his eye on all these bees, and odd jobs of transferring.

TURNIPS.

Last year, I procured a quantity of turnip seed (name lost) from Scotland, of a sort that would remain unhurt in the field all winter, for pasturage for sheep. This I sowed in my corn field and tobacco lots, at their last working, so as to save labor. All along, I had a good bite for the ewes, and when they shot up to seed, I took the sheep off, and consequently had acres of pasture that was perfectly alive with bees; in fact, you could hear the humming for some distance. The plants grew about 4 feet high, and as I had only a few hives of bees, I plowed them under for a corn fallow again. Had I known its value, I could have saved you 20 bushels of seed. As it is, I only saved a small lot of fine seed, and if you want some, you can have it. It does not need to be put away from frost at all.

JOHN WILLIAMS, "Englishman".

Lynchburg, Va., May 17th, 1878.

SUGAR SYRUP, ETC.

Last season was good here for bees, until white clover failed. They not only stored no honey afterwards, but consumed part of what they had previously stored. For the first time, during the 12 years in which I have kept Italians, I was obliged to feed bees to winter them. Nearly every colony was fed from 5 to 25 lbs. of sugar syrup, made as you direct, without the use of acid. To a part of it, there was added from 1 to 2 lbs. of honey to every 10 of syrup. It was fed very late, so late that much of it remained unsealed. In looking the bees over this spring, I find it in much the same condition which it was in when fed. I can find none that is candied in the cell or under the hive, showing that the use of acid, to cut the grain of the sugars is not necessary.

I was about to write you, stating that just the reason why I liked the metal corners was because of their very "slickery slickeryness," when, in lifting a hive partly filled with combs, honey, and bees, it tipped a little to one side, and all went to the ground in a broken, mashed up mass; so I guess I will postpone the writing till some other time. Careless? Of course I was. J. H. TOWNLEY.

Tompkins, Mich., May 18th, 1878.

The little plane is quite a gem; every person that sees it, wants it. R. V. ACKER.

Williamston, S. C., May 27th, 1878.

One thing which I like about your journal is that you say "I." When a fellow means "I," I don't like him to include me and everybody else, and say "we," especially if he has been, or is, doing something mean. DR. A. C. WILLIAMS.

Hugo, Ill., May 25th, 1878.

Thank you. I have used I instead of we, because I could not feel it to be right, to give my individual opinions in any other way. I feel a little guilty, when I say "we," but when I say "I," I know that I am telling the plain simple truth, and when I am doing that, I am not afraid of anything or anybody. I know some of the friends scold a great deal, because I mix up my pronouns, but I do not see how I can well do differently, and convey just the idea I wish to convey.

FASTENING FOUNDATION IN THE FRAMES.

I think I can surpass any invention yet spoken of in the journals, for fastening foundation into frames, sections, etc. I do it thus:—

Here follows a description of an apparatus essentially the same, as the one described in our price list, under head of "The Melted Wax Plan."

Procure a tin pepper box about 2 inches in diameter, and 3 inches deep; remove the lid, and opposite the handle, bend the cup so as to form a lip that will run a stream about ⅛ of an inch in diameter; next, have a tub of cold water to work over, so as to catch all waste wax; also, have another vessel (a coal oil can with a very small spout is good) filled with water. Take your boards fitting so as to come half way into the frame, and bring the fdn. in the proper place; fill the pepper box with very hot wax, hold the frame in the left hand over the tub, inclined at an angle of 45 degrees each way, and pour wax on at the top of the fdn., moving the cup along the frame from one end to the other; then instantly set the pepper box over a lamp to keep it hot, and catching up the oil can of water, pour a stream of cold water over the hot wax, so as to cool it quick. Repeat the operation for each frame. If the pepper box becomes clogged at the spout, hold it in the lamp blaze until the wax is removed. If hot wax is used as I use it, I defy any man to put in fdn. any more securely than I do. I send you, by to-day's mail, a sample enclosed in a small box, so as to show you how neat my work is, as well as secure. I can put in from 5 to 7 per minute, 18 inches long, saving ⅓ of the wax used by other plans. L. W. BETTS.

Willsboro, Del., May 26th, 1878.

Thank you, friend B., for the idea of the stream of cold water. The sample you send shows the work beautifully done, without any mistake, but you certainly do use more wax than is used by the plan of rubbing the sheets fast to the comb guide. The only objection to the latter plan is that so many say they "can't". Doing from 5 to 7 per minute is pretty fast work.

I must say your little smoker is a perfect little gem. **THOMAS H. PRICE.**
Geneva Lake, Wis., May 12th, 1878.

REMEDY FOR THE BLACK FLEAS ON RAPE.

If you are troubled with the black flea on your rape patch, dust it with ashes, when the dew is on in the morning. I have no trouble now. The Chaff hive is ahead of all others for section honey, with me. I made new honey in Feb. Bees all wintered well. Sweet clover is beginning to bloom, 4 feet high. **ALEX FIDDES.**
Centralia, Ill., May 9th, 1878.

Ought the leather part of the smokers to be oiled?
King's Creek, O., May 28th, '78. **A. L. MORGAN.**

I presume it would do no farther harm, than to make the implement untidy, and rather unpleasant to handle. Unless the leather should get very hard and stiff, I do not think I would oil it, but you might try it and report.

I live in north Mississippi, at a point near latitude 34°, longitude 90°. I keep bees. I have tried comb fdn. and find it insures straight comb, if one-half a sheet, cut diagonally, be fastened by the long base (*not* the hypothenuse), to the top bar of each alternate frame in the hive. I find that the top bar of the all wood frames you supply to the trade, is too thin and flexible for safety in this warm climate, at least 15 per cent of them sagging, when the Langstroth frame is filled with eight lbs. of honey in new comb, whether built on fdn. or not. I think, but do not know, that threads of strong linen, or fine wires, worked into the comb fdn., would be a great safeguard against cracking and bending while extracting, or in the lower story during hot weather. You complain of propolis being hard to remove from the fingers. It is generally a species of waterproof pitch or gum, of a nature similar to tar or pine resin, and can be readily removed, by dipping the smeared part in lard or other oil, rubbing it until the pitch and the grease are blended, then using ordinary soap and cold water. The process need not occupy half a minute. **H. A. MOODY, M. D.**
Longtown, Miss., May 21st, 1878.

Our top bars are now made stronger, as has been explained. Threads of linen, or of any other substance of such a nature, will be picked at by the bees, until it is all torn out, thus wasting their valuable time, besides defeating our object. They doubtless feel suspicious of any such foreign body, because it so nearly resembles the fibres of the nests of the moth worms. The copper wires will answer, but, at present, I believe we are generally well enough pleased with the fdn. as it is, without going to all this trouble. Many thanks for your hint on propolis. We shall have to have a neat little "lard pot," fastened up by the soap and wash basin.

STOPPING JOURNALS.

The April No. of GLEANINGS being my last, for the year for which I subscribed, I am pleased that you do not send more, until you are asked to do so and paid. I should be pleased, if the habit of sending papers which have not been ordered or paid for were broken up. I have had my patience somewhat tried in this way. **E. CHENEY.**
Winneconne, Wis., May 21st, 1878.

I am very glad, my friend, that you approve of our course. Some of our friends scold, if we stop it at the expiration of the time, and some, if we do not stop it; and it is, therefore, a little difficult to strike just the best way to please all, but I think by far the greater number approve the more modern way of giving you just what you pay for, and no more. Where the price is very low, a publisher cannot well afford to run small accounts, all over the land.

I send you my account of last year's "beeing." The season was not good. No honey gathered to speak of after July 5th; drouth very severe. I wintered my 28 swarms safely; half in cellar, the rest on summer stands packed in boxes with hay. Lost two by thieves. Here is the result.

DR.	
To lumber and machine work on hives and boxes	$21.00
" two queens	2.20
" foundation	1.50
" observing hive	1.00
Totol expenditures	$25.70
CR.	
Extracted honey 252 lbs.	
Comb " 250 lbs.	
Total 502 lbs. Average 18c	$90.36
By 4 swarms sold without hive	17.50
" 8 hives and boxes on hand	20.00
" 12 swarms increase, @ $5	60.00
Total receipts	$187.86
Total expenditures	25.70
My own work and profit	$162,16

Not much honey gathered from fruit blossoms (too cold and wet), only sufficient for brood rearing; but they are getting strong, ready for white clover.
Ann Arbor, May 18th, 1878. **N. A. PRUDDEN.**

I would like to have some of your subscribers in Mass., and in Worcester Co., in particular, inform me, through GLEANINGS, how much honey good hives of Italians will produce in the state and county named. I mean surplus honey and taking the hives as they average. Will some bee-keeper be kind enough to give the information and oblige. **GEO. O. CHURCHILL.**
Darwin, Cal., May 22d, 1878.

If I am not mistaken, such questions are very difficult to answer. In almost any locality, if the circumstances are *all right*, 100 lbs. or more may be obtained from one colony in a season, but the general results will be all the way from nothing up. Perhaps the general average is about 50 lbs., when increase is prevented, throughout the country. What do our friends in Mass. say?

SWARMING WITHOUT BROOD.

I transferred 15 stands April 18th, and got only two stings, one by accident, the other intentionally. Bees were in good condition. Lost none wintering. May 4th, one colony cast a large swarm. It was a raw chilly day, so much so that the bees, by the thousands, were chilled and fell on the ground. At first, I was at a loss what to do with them; but I finally concluded to give them a sheet of brood and a new hive. I went to the mother hive to get the brood, and to my utter surprise, not one particle of brood was to be found. Now, why was there no brood? There was a queen came out with the swarm for I saw her. Why did they swarm on such a day? **E. H. CRIPPEN.**
Moscow, Ind., May 5th, 1878.

If the hive was full of bees, they had certainly had brood very recently; I think they swarmed out because they knew something was wrong, and knew not what else to do. Bees will swarm out of their hive, for a variety of causes, when things do not please them. Sometimes for want of stores, sometimes because their hive is too large and open, or too small and close; because their entrance is either too large or too small; because the hive is too hot; and I think, in a few cases, because their queen is not doing her duty, as in the case mentioned.

Our Homes.

But the seventh day *is* the sabbath of the Lord thy God; *in it* thou shalt not do any work, thou, nor thy son, nor thy daughter, thy man-servant, nor thy maid-servant, nor thy cattle, nor thy stranger that *is* within thy gates.—Exodus, 20; 10.

IN describing my visit to the brewery, I neglected to mention that they plead, as an excuse for selling beer on Sunday, that their friends and neighbors would come over and ask to be accommodated, and it was not an easy matter to refuse a friend and neighbor so trifling a request. You may be inclined to call this only a pretext or an excuse, but it really has a strong element of truth in it, and I should know something about it by experience; for it is but a very few years ago, that I would have felt it almost an insult, had a saloon keeper refused to sell me a pitcher of beer on Sunday, if I chose to have it. It seemed to me then, but a little thing, a mere trifle, and I do not believe the idea ever so much as entered my head, that, by so doing, I was encouraging a disposition to ignore the Sabbath day.

"If the people will not come here and ask for beer on Sunday," said the brewers, "we will be glad to stop the business of selling it; for we would like to rest, and go to meeting, too, if we could have our own way in the matter."

Are the brewers entirely to blame? I studied over the matter, and prayed over it, and it began to be made clear to me, that I must make friendly visits to the people in their own homes, and talk the matter over pleasantly, if I would build up the Sabbath school, and have the people respect the Sabbath. I must go not only to those places where I feel acquainted, but everywhere, and to every house; and if there is one in the neighborhood, who feels a dislike to the Sabbath school, it is to him I need to go. All right, if this is my work, may God help me to do it well.

I have been in the habit, as I have told you, of getting up between 4 and 5 o'clock, on week days, during this busy season of the year, and the idea occurred to me, that I should, to be consistent, give the Lord certainly as good a day's work as I would do for myself; accordingly, I arose on the next Sunday morning, at about my usual week day time, and made some of the folks scold a little, by asking for breakfast long before the usual hour on Sunday mornings. After breakfast, a thunder shower came up, and—should I wait for another Sunday? No sir-ee! The Great Commander, who calls us to duty, only asks of us to do our part, and He will take care of the result. Is not this a pleasant thought? How it lightens our responsibility, otherwise too heavy for us to bear. When I thought of staying at home, I felt miserable; but as soon as I made up my mind to go anyhow, and trust the result to Him who holds the thunders which were then rolling over my head, I felt as happy as I used to years ago, in my childhood days, when starting out into the woods with my father on a bright June morning.

As I crossed the rail road, and reached the top of the hill, the great drops warned me that I must seek a shelter, and guided me to a little house, where I found a room full of barefooted children, just taking their breakfast. I do not know exactly how it came about, but very soon, the mother informed me that not one of her whole flock had ever attended a Sabbath school in their lives, and still farther, that none of them had ever attended a day school. The reason given was that they had not clothes to wear, and that they had nothing to do to enable them to earn any. How quickly did my mind revert to the brick factory, that is, by God's help, soon to be started right within sight of their home, and bright visions of the whole family attending the morning Sabbath school or Bible class, in a little building that begins to be dimly shadowed forth in close proximity to the factory, arose in my mind. I said nothing of this however, but talked to them, and learned that they had picked up some little hymns, such as "Hold the Fort," "The Home Over There," &c., and I had very soon passed the little books to the elder ones, and we had a real good time, singing and talking, until the rain began to cease. I then asked if we should not thank God for the beautiful rain, and for the pleasant homes he has given us, by all kneeling in prayer.

"But your religion is not like ours," said the mother, "we are Catholics."

"Are you? I am very glad to hear it, and I hope you go to church every Sunday, and are faithful to your religion. Do you not have a Catholic Sunday school?"

"I guess not; we do not go very regular."

"Has your priest never been to see you and the children?"

"He never has."

"Well, the next Sunday when he preaches, I will see him, and, with his consent and sanction, we will have the children go to Sunday school somewhere."

The father here expressed his hearty approbation of such a course, and remarked, that if I felt friendly towards the Catholics and everybody else, no matter what their views of religion, he knew there could be no harm in joining with me; and as he called to the children, all of them, to kneel, perhaps for the first time in their lives, I felt that we all had made a good start toward keeping at least one Sabbath holy. The whole day was spent in just such visiting; and, after finding kind words and pleasant greetings from all, even from those who were sceptics, who worked on Sunday, and who kept saloons, I began to realize that it did not require any special miracle, after all, to arouse a whole community to the importance of remembering the Sabbath day, to keep it holy. We had a full Sunday school in the afternoon, and an excellent prayer meeting in the brick school house in the evening. For the opening chapter, I read a part of the 28 chapter of Deut.

After walking nearly 20 miles that day, I got home about 11 o'clock at night, with a new faith, which I had never felt before. How about the Sunday school? Do you suppose it "dwindled" after this? To be sure it did not, for the very first Sabbath afterward, the house would hardly hold all the children. Every face almost, that I had seen in my visiting tour, was promptly on hand, and the Catholics and Lutherans, of which there are a great many in the town, were there with the rest. I felt badly, to think I could not give them a better school, after they had all taken so much pains to come. God showed me how to build up the school, when I asked Him for wisdom in the matter, and He will, without doubt, guide me in my efforts to make it interesting, if I call upon Him in the same way. Perhaps I should mention, that just before our prayer meeting, I learned that one of the trustees had objected to the school, and wished it discontinued. After a walk of nearly two miles, he assured me he had no objection, although he had but little faith in those who made professions, and did not live up to them. One of the others who lived a mile the other way, had expressed a dislike to the school, so he told me, and after finishing my call, I went back. This last was a Catholic, but frank and honest enough to own up what he did say. He had threatened to break the school up, but he said they made him mad, by accusing the Catholics of wishing to rule the nation, and he had said more than he meant. He and his wife came to the prayer meeting in the evening, and all of the children have been regular in their attendance since. What is the need of quarreling about who shall be greatest?

Well, some of our fast young men, who have been in the habit of going to the saloon and brewery on Sunday, when they found both places locked, and no admittance, declared they would go to Liverpool, the next town, where they could get all the drink they wanted, for the stores and saloons there were open all day Sunday, the whole of them. Upon inquiry, I was told that not so much as even a spool of thread could be purchased in this town, without patronizing a grog shop; that their Sabbath school was almost used up, by the prevailing infidelity, and that it had, in fact, been closed during all the past winter.

I talked with my friend Fred, about it (Fred is the one whom I found in jail, a little more than a year ago, without friends or home), and Fred brought his own horse and buggy, and we two started early Sunday morning for our Sunday's work. True enough, the places of business were all open, and the first individual I accosted, used so many oaths in his reply, that I could hardly get an opportunity to get in a mild reproof. I did get it in however, but when he found out who I was, he used another oath, to express his pleasure in seeing me. I asked him if he was not going to Sunday school, but he said he sent his little girl, and gave her a penny every Sabbath, and he thought that enough. How is it, my friend? Is that the way *you* do, and *is* it enough?

"But why do not *you* go too?"

"Oh I did go one spell, but they quarreled so much there, that I could not stand it, so I staid away, and said I would never go any more, and I have kept my promise."

Now it comes very natural to say, that this was only a pretext or an excuse for staying away, and for swearing, but something seemed to tell me that day, that I must not find fault, but must look for some good lesson, or moral, from all that was said on the other side. By inquiry, I found that the S. S. folks had quarreled, just a little at any rate, and the lesson here was, be very careful about having quarrels or controversies that might deter any casual visitor, from regular attendance.

After I had looked about the town some, and talked with a few of the people, I began instinctively to feel that I needed with me, the weight and influence of all the most influential people I could find. I needed to attack the enemy, on all sides at once, and to bring all the artillery I could scrape up, to bear directly on this Sabbath day matter. I had a good talk with the superintendent of the school, who is a young convert, and felt almost discouraged; then Fred and I hunted up all the ministers of the different denominations, and placed the matter before them, as best we could, and called upon them to aid us in our endeavors to have the Sabbath day kept inviolate. In every case, I was astonished to find such a cordial good will manifested, and such a willingness to join in and help, even though it brought pastors and people in contact with others, who, as near as I could learn, knew nothing of each others fields of labor, even though but a narrow street separated their respective churches. Every one with whom we talked, expressed joy at the prospect of a quiet Sabbath day, and when we finally approached the saloons, the matter had been thoroughly canvassed before we called, and, as near as I could judge, a general feeling had sprung up, that it would be better to close up except on week days. When I passed along the street, in the morning, and saw the stores open, and the people sitting quietly around, it seemed a terribly hard task for a stranger to go to them, and find fault with the manner in which they conducted the affairs of their own town, but after we were once really in the work, the difficulties that had loomed up so formidably during the day, when I thought of the work, had so completely vanished, that I felt almost as much at ease, as in talking to the children in the Sabbath school. At our last call, a smart lawyer took me to task in a way, that would probably have upset me, and the spirit in which I had commenced, had I not been armed and equipped for just such trials, by praying beforehand, that God would take care of the work in which we were engaged. I had commenced to remonstrate with the proprietor of quite a large brick drug store, and while we were talking, he came in and took a seat. I purposely made a pause, as I inferred that he had something to say, when he spoke somewhat as follows.

"Mr. Root, we Liverpool people have our faults, and may not always do just right, but, for all that, we claim to be as moral a people as those up in Medina. We, in common with the rest of the American people, claim the privilege of worshiping God, according to the dictates of our own conscience. I have been at work to-day, and I do not know that it is any body's business, if I choose to work every Sunday. Sir, is it any worse to work on the Sabbath, than to go to prayer meeting Sunday evening, talk and pray with the young people, and then go home and soak your building with coal oil and set fire to it, just to defraud the insurance companies of their honest earnings?"

Now, I shall have to explain, my friends, that it is true, that one of our citizens, a man that stood high in the estimation of almost every body, did come to our young people's prayer meeting, and although he did not join in prayer, he talked to the young folks, and made professions of Christianity, and then, that very night, saturated the contents of his store and dwelling, which were all together, and set fire to them. There was a zero temperature at the time, and it was with extreme difficulty that our fire engine could be made to work. Our whole town was in danger of destruction, for his store was right in the midst of a long block of tall buildings. The lives of our citizens also, and our firemen, were greatly endangered.

I replied, "I heartily agree with you, my friend, that you have no such men in Liverpool, and that the crime was immeasurably worse than Sabbath breaking; but the Medina people have not sent me here, and know nothing of my errand."

"Who did send you? and where is your authority?"

"God sent me, and the book that commands us all to remember the Sabbath day to keep it holy, is my authority, if such it may be called. I do not come to dictate, or to find fault, but only, in a friendly way, to suggest, and to beg the privilege of talking over the matter pleasantly."

"But you have tried Sabbath school work 1800 (?) years, and yet the world is only growing worse. Do you not think it is time to try something better?"

"Then you do think, my friend, that we are growing worse, and that Sabbath schools are insufficient?"

"Yes."

"And will you not come over to the prayer meeting to-night, and give us suggestions in regard to a better way?"

"I will tell you a better way; there is too much whisky drank and sold in this town, and the remedy is to prosecute both the drinker and the seller, according to law, and then they would stop it."

"It may be best, but, my friend, I would rather go to the man who gets drunk, and to the man who sells the drink to him, and talk with both of them, in the same pleasant and kind way in which you and I have just been talking, and I have a feeling that neither law nor prosecutions will be needed. That is the way in which I would make the Sabbath schools a power in our land, and a way of working in which I *know* God will be with us."

"You are right, Mr. Root, I know you are right; your plan can do no harm, for it never makes enemies. Go on, and do not be discouraged."

The above may not be his exact words, but it is the sum and substance of them, and as I thanked God that I had—no, not I, but that the spirit of Christ had once more, that day, come out victorious, do you know how happy I felt? We had met enemies, but had left friends, every where we had been.

We had an excellent prayer meeting that night, and the few words which the young superintendent spoke, as he publicly consecrated his life to the work, were worth going miles to hear. After he sat down, a man who had been for years a professor, but who had never thought it his duty to go to Sunday school, until I had had a talk with him that day, got up, and promised to give his life and energies also, and to stand by his young brother. Others took up the key note, and after meeting closed, one who had never been a professor, came to me, and said he, too, was ready to enlist, and give God the remainder of his life. My friends, do you not think I felt on my way home, that there was a pretty fair prospect that business would give way to the Sabbath school on Sunday? and do you not think I could feel, too, that I had done a pretty fair day's work? or rather, perhaps, that so long as God saw fit to bless my humble efforts in the way he had done that day, I could hardly afford to spend many Sabbaths idly?

It seems to me, that some of my readers, and I can't blame them, are saying, "Mr. R., why do you not carry this same spirit and armor, into your work among the bee journals? and disarm by kindness those who speak so harshly and unkindly of you, now and then? why are you mixed up in so many quarrels and controversies?"

I humbly acknowledge the justice of the reproof, but yet, I do not know how to do very much differently. Could I see the parties who censure me so severely, and talk with them as I did with those last Sunday,—I do not know about that, after all. When I am doing mission work, I am in a different mood. I am then free from business, am working without pay, and prepared to turn the other cheek also, with more thorough consecration, than at other times. I am afraid it is not possible to get through this world, and have everybody feel pleasant toward you, especially, if you are going to take the part to a very great extent, of those who are being wronged; but I do know that kindness and gentleness might, a great many times, be substituted for severity. It takes a great deal of wisdom, to decide on the best course in such matters, and I am afraid your friend errs a great deal, in this direction. I can talk kindly with a drunken man who is abusing his wife, or the one who sells him the drink, but the man who goes around demanding and getting money from people who are using a simple bee hive, claiming falsely that he has a patent covering it, I am afraid I should not treat pleasantly; or even if I did, I am afraid he would not feel kindly to me, if I spoiled his business, especially, if he had some slim excuse for his course.

About the man who attended the prayer meetings, and then set his building on fire; although he has attended these meetings considerably, for the past year or two, during which time he has resided with us, he has not been a member of any of our churches. He was zealous in defending the cause, but not very constant in his attendance, nor had he taken any part in our Sabbath schools; although he had, before he came to our town, been a Sabbath school superintendant. In a talk that I had with him in the jail, he stated very positively, that the event could never have happened, had he read his Bible, and asked God to guide him in the right path, as had been his wont, in former times. I think it very likely that he came to meeting that evening, and spoke, for the purpose of leading suspicion away from himself; for he poured on the coal oil, both before and after this meeting. If a man defends the truth strongly, and yet is not a truthful man, what shall we think? or if a man who has been upright and truthful all his life suddenly gives way to falsehood and crime, what shall we think of him? It simply reminds me of the great need there is for us all to remember how wily is Satan, and how great is the danger of yielding in some unguarded hour. This man, I do not know but that I can say friend, for we had been on quite friendly terms, told me that when the temptation first presented itself to him as a means of getting out of debt and saving himself from bankruptcy, he spurned the thought from him as would almost any one, but that it kept constantly recurring, and he finally harbored it, long enough to simply speculate on how it might be done; even up to the last minute, he had not difinitely decided on the crime, but something seemed to urge him on, as if it were in a dream. Lead me not into temptation. I have felt, all along, that this occurrence would be brought forward, to prove that religion was not a corrective for crime, and one of our readers asked, if I did not fear the tendency of Sabbath schools to evil, with such results before my face. My friends, there is a broad gulf between going to Sabbath school as my friend who has been so often in jail for being intemperate now does, and the way in which this man did. The former goes to be taught, and with a humble, honest desire to learn, and to get the strength he knows he so sadly lacks. The latter went—I will give you just one illustration. During his two years stay in our town, he taught a class just once—a class of boys, and our boy was one of them. During this first lesson, he told the boys there was no harm in dancing and card playing of themselves, and that there was no impropriety, or inconsistency in going to a prayer meeting and to a dancing party the same evening, if they chose. His very boys rebelled at such teaching, and right there, corrected their own teacher. The officers of the school talked the matter over, and decided that he should not be asked to teach any more. Going to the Sabbath school, of itself, by no means proves a safeguard, but going with a humble sense of our need, and a sincere wish to do better, never fails to help both ourselves and those about us. Keeping the Sabbath day holy, as well as we know how, will never get us into trouble.

THE $25.00 CHAFF HIVE.

OUR friend Foster, of Mt. Vernon, Iowa, has made a chaff hive that is quite ingenious, even if it does not please me better than my own. It differs very little from our chaff hive, except that the upper frames run the same way as the lower ones; also the upper tier is set ½ inch further forward than the lower one. Now, in order to remove the lower frames, a portion of the back end of the upper story is made removable. This piece has the central part of the rabbet on its top edge; it also hangs by its top edge, something as a frame does. This idea is not especially new, for "dummies" in a bee hive are an old device; but the idea *is* new, of making this dummy a frame of candy, or a feeder similar to the Dunham feeder. To take out the lower frames, you first remove the 4 central frames that hang on the dummy; the dummy is then lifted out and laid down, or hung on a nail as our friend suggests. You can now move any of the lower frames under this opening, and remove any or all of them. When you put the dummy back, no bees are killed, because it touches only at the points of support like a frame. Furthermore, it is not really necessary to lift the dummy out, for it can be moved back into a recess, just large enough to receive it, and not large enough to allow of combs being built. He writes:

> It is said that every bed-room should have a closet. We think this one will not come amiss. The *very want* of just such a place has induced us, heretofore, to cut a *hole right through* all our chaff cushious, inserting a small box, without bottom, in which to keep a flour candy brick in winter, and in the spring a tin feeder filled with grape sugar, for stimulative feeding. We tuck in a handful of rags on the top of the feeder. It is the "boss" way to feed. Our bees used the candy all winter, and had hatching bees in 2 and 3 combs in February, etc. You can examine and feed in the coldest weather, without disturbing, can *see* when they want more, and you have no large empty space in the hive when it is gone. Should dysentery occur, the candy is not stained.

The principal objection I should have, is that it is a loose piece to the hive, that would get out of "kilter," and get lost; the bees would, in time, stick it so tight that it would be difficult to pry out, and I fear it would in the end be more trouble to get it out, than to lift out the few remaining frames, after we had once taken out the four central ones as we are obliged to do in either case. I very much dislike, my friends, to find fault with all the plans you submit, but I cannot but feel that I am doing you a kindness, in advising the plain, simple plan, without machinery, that I gave you in the Chaff hive.

◆

We have got our slate factory going, and can now furnish very nice little slates, somewhat smaller than those furnished by friend Newman, for one cent each. We find them very handy for a multitude of purposes, aside from the queen cards. They are useful to note down all about feeding, brood, queens, etc., etc. Also, if you have purchased a queen, you can note on the slate where she came from, and all about it. They have been especially handy for us in this respect, for we have purchased many hundred queens this season, already. Wet the slate before you write, and the writing will be in no danger of being obliterated. Price by mail will be 2c each.

Cash for Beeswax!

Will pay 30c per lb. for any quantity of nice clean wax delivered at our R. R. station.

A. I. ROOT, Medina, O.

QUEENS! QUEENS!

I have propagated and sold Italian queen bees for the past 10 years, and will supply a large number for 1878. Tested queen, $2.00; warranted, $1.50; unwarranted, $1.00. Safe arrival guaranteed.

Address WM. HOLLAM, Kewaskum,
7-8d Washington Co., Wis.

1878. ITALIAN QUEENS. 1878.

Large, very handsome and prolific. Warranted $1.25; unwarranted $1.00; tested $2.00. No money required until purchaser receives his queens. Send for circular. Address H. ALLEY, Wenham, Mass.

ITALIAN QUEENS.

Italian queens from an imported mother, full stocks and nuclei. Price list free.

7d O. H. TOWNSEND, Hubbardston, Mich.

Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 25
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	9 00
" " per sheet	10

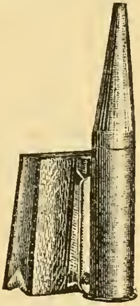
We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

SMOKE

AND

SMOKERS.



I am overwhelmed with letters asking "which size of smoker is the best?"

Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries*, and for *coarse fuel* they are the *best*.

The Standard is what its name implies, and constitutes the *bulk* of *sales* so far.

The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants; it is larger, however, than the improved Quinby.

The first "Direct Draft" smoker *ever sold* has been used one year, and sold for one dollar, as the gentleman wanted a *large* size.

It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price*."

They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco*, or *sulphur*.

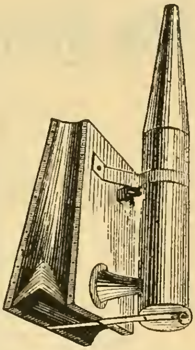
Directions sent with every smoker.

These smokers are a *necessity in modern bee culture*, and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per	Express..	$1 75	Mail....	$2 00
Standard	" ...	1 50	"	1 60
Small,	" ...	90	"	1 00

Patented January, 1878. Manufactured *only* by the inventor, T. F. BINGHAM,
4tf Abronia, Allegan Co., Mich.

KING'S
DIRECT DRAFT
SMOKER,



Is giving unbounded satisfaction wherever used. It *economizes all* the wind and smoke, *burns all combustibles* and goes out ONLY *when* PUT OUT. It is the same size as "Bingham's standard," and is NEAT and DURABLE. Price, $1.00; by mail $1.25. Address,

A. J. KING & CO.,
6tf 61 Hudson St., N. Y.

---

250 COLONIES ITALIAN BEES FOR SALE.

I will sell 250 full colonies Italian bees in best movable comb hives at $4.00 each if all taken at once and where they stand, about 300 yards from steam boat landing on Mississippi river. All queens daughters of imported mothers.

WILLIAM H. WARE, Bayou Goula P. O.,
7-8d Iberville Parish, La.

FOUNDATION!

Order your fdn. of us and get our printed instructions for securing at least 25 per cent more honey in boxes or sections than can possibly be secured by the ordinary method. Reports at hand highly commend the plan.

5 to 10 lbs. 12x18 or 8x16½, per lb	55
25 " " " "	53
50 " " " "	52

Shipped by freight or express.

J. OATMAN & SONS,
7-8d Dundee, Kane Co., Ill.

1878. FOR SALE! 1878.

Italian Queens.

Propagated in populous colonies, pure and prolific. Tested queen, $2.00. The same grade of queen so soon as fertilized and laying, $1.00. Also full and nucleus colonies. Orders filled promptly, and safe arrival guaranteed. *When wanted by mail, add 9c for postage.*

Address W. P. HENDERSON,
4-9inq Murfreesboro, Tenn.

Queens Wanted,

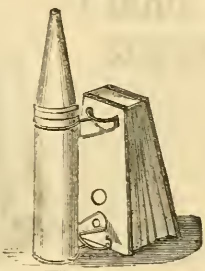
And Queens For Sale.

Until farther notice, I will pay 75c for Italian queens reared from imported mothers; the queens to be sent by mail or express as you choose, as soon as they begin to lay. No tested queens wanted at present, as I prefer to do all the testing in my own apiary. These same queens will be sold for $1.00; you are to guarantee safe delivery, and I will do the same. I will also pay 15c each for black queens, and 25c for hybrids; they will be sold at 25 and 50c each. Safe arrival guaranteed as above.

Mark black queens X; hybrid queens XX; dollar queens XXX. Every package of queens *must* have the name of sender and kind of queens plainly marked on them as above.

I hope to be able to fill all orders for queens by return mail: nearly 200 colonies are now principally devoted to this purpose, and the number will be increased if necessary. Tested queens will be $2.50 until further orders. If you want us to pick out the largest, yellowest, and most prolific, the price will be $3.00. Small and dark ones, *when we have them*, will be $1.50. A. I. ROOT, Medina, O.

New Quinby Smokers!



The Smoker I am offering the present season, is entirely new in many respects, and is pronounced the best in market. In quality of material and manner of construction, it is as durable as can be made. It works as perfectly in every way, as any smoker now in use.

See what bee-keepers say of it.

"I bought 8 of Mr. Bingham's smokers last winter, but had you then been manufacturing the perfect smoker you now offer I should certainly have purchased of you." CAPT. J. E. HETHERINGTON.

"In excellence of workmanship and material it far surpasses any smoker I have ever examined." P. H. ELWOOD.

"I pronounce it decidedly the best bellows smoker made." G. M. DOOLITTLE.

Sent on receipt of price.

2½ inch tube by mail	$1 75
2 " " "	1 50

By express 25 cents less.

Send for circular of General Supplies to

5-4 L. C. ROOT, Mohawk, N. Y.

POPLAR SECTIONS CHEAP.

Dovetailed Sections, any size from

4¼x4¼ to 5x6, 2 in. wide	per 1000	$6 00
Sections ready to nail (same size)	" 1000	4 50

Comb Foundation, 45 to 55 cents per lb. Sample Sections, by mail, 5 cents. Dollar Queens after June 1st. Address all orders to

REINHARD STEHLE,
7d Lock Box 193. Marietta, Washington Co., Ohio.

STILLMAN & Co.
Engraving
ON WOOD
N.W. COR. FRONT & VINE
CINCINNATI, OHIO.

PRICE OF ITALIAN QUEENS

D. Tremontani, Cremone, Italy.

April, May and June	12 francs in gold.
July and August	10 " "
Sept. and Oct	7 " "

Price for California and Australia, 2 francs more than above.

No order for less than 8 queens is accepted. If any queens die in the trip, they must be sent back in a letter to have the right to an invoice of compensation. If anyone should refuse to accept the invoice, all right to a compensation shall be lost. [The value of a franc is 18¾ cents, gold.—Ed.]

D. TREMONTANI, Cremone, Italy.

VALUABLE.

J. H. Nellis has issued his new 22 page descriptive, illustrated circular, which is one of the most complete of the kind ever published. It gives prices of Imported and home bred Queens, Nuclei, Full Colonies, Comb Foundation, Bee Hives, Section Boxes, Honey and Wax Extractors, Bee Veils, Gloves, Fountain Pumps, Smokers, &c., &c.

It tells how to introduce queens, how to use foundation, how to manage bees to the best advantage, &c. It gives illustrations of prominent hives, and answers many questions. It is sent free, although we invite you to send 6 cents for postage and to partially cover cost of publishing. We send sample of our new drone comb with each circular. Our drone and worker comb mills, both, work sheets 12x24 or less in size.

Foundation--Price List.

Pure yellow wax, sheets cut to *any size.*

1 to 25 lbs., sheets larger than 5x6, per lb	55c
25 to 50 " " " " "	53c
50 to 100 " " " " "	52c
100 to 500 " " " " "	50c
500 to 1000 " " " " "	48c
1000 lbs. or more " " " "	45c

When sheets are 5x6 or less in size, add 10c per lb. for extra work in cutting and packing. By mail add 25c per lb. for postage. We can supply any quantity at short notice. We are headquarters for foundation. Our circular devotes 3 pages to foundation.

Queens--Price List for July.

Dollar Queens, each	$1 00	per doz.	$11 50
Warranted " "	1 50	" "	15 00
Tested " "	2 50	" "	24 00
Imported " "	5 00	" "	....

Cyprian Queens ready soon—see my circular for prices.

For Nucleus Colony with two large frames of brood and honey, add $2.00 to the price of either of the above queens.

Our section boxes are planed on edges and one side, and are first class in workmanship. We manufacture Quinby, Langstroth, Simplicity, New American, Nellis, and other prominent hives, and guarantee satisfaction. We make a specialty of the Hetherington crate for marketing honey. For prices of all these goods, with illustrations and descriptions, see circular.

Send money orders payable to me on New York City.

J. H. NELLIS,
5tf **Canajoharie, N. Y.**

SIMPLICITY BEE HIVES.

Having fitted up my shop with new machinery, I am prepared to furnish Simplicity—Chaff—Langstroth or other Hives—Metal Cornered Frames—Section Boxes—Shipping Cases, &c. Also Italian Bees—Queens—and Apiarian supplies of all kinds.

For particulars and price list.

Address, G. W. MARSHALL,
2-7d 316, East 16th Street, Davenport, Iowa.

BEFORE PURCHASING

Supplies for your Apiary, send a postal card with your name (and if you will do us the kindness, those of bee-keeping neighbors) for our price list of Apiarian supplies of every description, and sample sectional box and comb foundation.

Italian queens from imported mothers.

2-8 J. C. & H. P. SAYLES, Hartford, Wis.

SUPPLIES.

Bees, Queens, Hives and Material. Novice Extractors, Comb Fdn., Smokers, Books and Bee Journals. Honey Jars and Tin Cans. Send for Price List. B. B. BARNUM,
5-7 Homestead Apiary, Louisville, Ky.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	" " waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
1	Cages, wood and wire cloth, provisioned. See price list	05
12	" " " per doz	50
	" larger size, double above prices	
20	Candy for bees, can be fed at any season, per lb	15
0	Cards, queen registering, per doz	06
0	" " " per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	20
9	" " without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	" " top only, per 100	1 00
15	" " bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $6 50 to 10 00	
	" inside and gearing, including honey-gate	5 00
	" Hoops to go around the top	50
	" " per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	" The same, large size, double above prices.	
2	" 3 cornered, for cross-cut saws. 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 25
0	GLEANINGS, Vol's I and II, each	75
0	" Vol's IV and V, each	1 00
0	" Vol. III, second-hand	2 00
0	" first five neatly bound in one	6 00
0	" " " unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	" " ½ doz	5 25
	" " ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	50
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	" " Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0 0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester	8 50
0	Queens, 25c to $6 00. See price list	
1	Rabbets, Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	" Catnip, good seed, per oz. 20c; per lb.	2 00
0	" Chinese Mustard, per oz	15
18	" Mellilot, or Sweet Clover, per lb	60
18	" White Dutch Clover, per lb	35
	" Motherwort, per oz. 20c; per lb	2 00
18	" Mignonette, per lb. (25c per oz)	1 75
	" Simpson Honey Plant, per package	05
	" " " " per oz	50
18	" Silver Hull Buckwheat, per lb	10
	" " " " peck, by Express	75
	" Common " per peck	50
18	" Summer Rape. Sow in June and July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
1	Slate tablets to hang on hives	01
	Smoker, Quinby's (to Canada 15c extra)	1 50 & 1 75
5	" Doolittle's, to be held in the mouth	25
	" Bingham's $1 00; 1 60;	2 00
25	" OUR OWN, see illustration in price list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of vail, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	12
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	06

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	3
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	4
12—*First and second Vol. of* GLEANINGS	1,50	10	6
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

BROOKS BROS.' Circular and Prices of Italian Bees sent free.
4-9 Elizabethtown, Ind., Box 27.

ITALIAN BEES.

Imported and home bred queens; full colonies and nucleus colonies; bee-keeper's supplies of all kinds. Queens bred early in the season. Send for catalogue.
9tf DR. J. P. H. BROWN, Augusta, Ga.

PRICE OF ITALIAN QUEENS

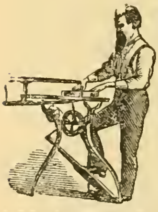
D. Tremontani, Cremone, Italy.

April, May and June .... 12 francs in gold.
July and August .... 10 " "
Sept. and Oct. .... 7 " "

Price for California and Australia, 2 francs more than above.

No order for less than 8 queens is accepted. If any queens die in the trip, they must be sent back in a letter to have the right to an invoice of compensation. If anyone should refuse to accept the invoice, all right to a compensation shall be lost. [The value of a franc is 18¾ cents, gold.—Ed.]

D. TREMONTANI, Cremone, Italy.



BARNES' PATENT FOOT POWER MACHINERY! CIRCULAR and SCROLL SAWS. Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making.** It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**

W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

E. W. HALE'S

Price List of Bees & Queens for 1878.

1 Colony Italian Bees with tested queen (before July 10th) $14 00; (after July 10th) $11 00
1 Colony Italian Bees with untested queen after July 10th 9 50
1 Tested Queen 2 50
1 Untested " 1 00

A discount of 10 per cent on all orders for queens of $10.00 or more. All queens raised from imported mothers. I have made arrangements to Italianize all the black bees within 2 miles of my apiary, and I think *all* my queens will be *purely* mated; all queens will be shipped in rotation, and I desire parties ordering queens, to inform me whether they wish the money returned if the order can not be filled at once.
2-8.1 Address, E. W. HALE, Wirt C. H., West Va.

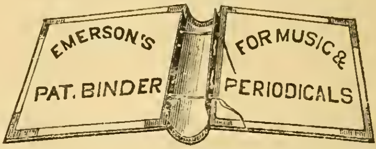
Grape Sugar.

Superior Double Refined Grape Sugar for feeding bees @ 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb. by the barrel.

We will furnish the above, at above prices, direct from the factory, at Davenport, Iowa, or deliver it on the cars here in Medina, at ½c in advance of above prices. Any amount less than 50 lbs. will be 5c per lb. A. I. ROOT, Medina, O.

FOR SALE.

100 Italian Queens. All of them bred from Impored Mothers of my own importations. Tested Queens $2. Untested $1.
Adress JOHN A. BUCHANAN.
8d Wintersville, Jefferson Co., O.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

COMB FOUNDATION,

45 TO 55 CTS. PER POUND,

According to quantity bought at one time. For further particulars see our Illustrated Catalogue, mailed on application. A. I. ROOT, Medina, Ohio.

BEFORE PURCHASING Supplies for your Apiary, send a postal card with your name (and if you will do us the kindness, those of bee-keeping neighbors) for our price list of Apiarian supplies of every description, and sample sectional box and comb foundation.

Italian queens from imported mothers.
2-8 J. C. & H. P. SAYLES, Hartford, Wis.

CYPRUS ISLAND QUEENS.

All the queens in our last importation having arrived dead, we shall be unable to furnish imported Cyprians for the present. Queens from our imported mothers $10 each, purity guaranteed.

IMPORTED ITALIANS.

We have given explicit directions to our agents to forward us only the very best queens; they are to be light, large, and active. For such we must ask $5. each. Any that do not come up to this standard, we will dispose of at $4. each.

We will deliver at express office here in box as received or forward by mail, as requested. Safe arrival of all queens guaranteed. No circular issued this season.

Registered letters or money orders at our risk.
C. W. & A. H. K. BLOOD,
8tf Box 234. Quincy, Mass.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. AUG 1, 1878. No. 8.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* $2.50; 5 *for* $3.75; 10 *or more, 60c. each. Single Number, 10c.*

MY EXPERIENCE, NO. 8.

CLIPPING QUEEN'S WINGS.

WHEN a queen arrived I removed the wire cloth from the cage, and with a pair of small scissors cut off half or two thirds of one of the queen's wings. Some of the bees, and sometimes the queen, would crawl out of the cage; but by exercising a little patience I always succeeded. This operation was always performed in a close room, before a window.

UNQUEENING.

To find the queen, I open the hive carefully, take out one of the central frames and scan it closely; if the queen is not found, I set it in an empty hive and take another. I proceed in this manner until I have removed all the combs. I look the combs over as I put them back into the hive, and if I do not find the queen I close the hive, wait until the bees get quiet, and then try again. When the queen is found, I cage her with plenty of bees and food, and keep her until I have a laying queen in her place. One queen had to be returned twice, because 2 queens ordered died before they reached me. I always unqueen a swarm a day or two before I expect a queen.

INTRODUCING.

As soon as a queen arrived her wing was clipped, and then the cage containing her was placed in a queenless colony. In 24 hours I cut out the queen cells that were started. In 24 hours more, if the bees seemed friendly to the queen, she was released. When I released the queen, I daubed her with unsealed honey taken from the hive into which she was to be introduced, and then allowed her to crawl upon a brood comb. As soon as the bees gathered around her, and commenced cleaning off the honey, the frames were carefully replaced and the hive closed.

Every queen, with *one* exception, was introduced without any trouble. I mentioned this exception when I was writing about artificial swarming. When the queen was released the bees seemed friendly to her, but in a few hours I always found her "balled." I do not know why this colony acted as it did; it had no queen or fertile workers, as they continued to build queen cells as fast as I tore them down; I think—but never mind what I *think*, let me tell you how I finally managed it.

One frame of brood and two frames of honey were removed, the bees brushed from them, and then they were put into a new hive and placed on the old stand, while the old hive was carried to a new location. The queen was left caged in the old swarm. In two days most of the old bees had returned to their old stand, leaving a small swarm of young bees among which to liberate the queen. She was released as usual, and the next day was laying nicely. I now exchanged places with the hives, putting the hive containing the queen back on the old stand. In a day or two most of the bees were back at the old stand, and the queen still continued to lay. The three frames that were removed were now brought back and placed in the old hive. After this the bees "behaved" themselves, the queen laid finely, and I was happy. I am aware that the above was considerable trouble, but I was *bound* to succeed. W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

I fully endorse all that our friend says about introducing, and I would particularly emphasize the importance of carefully saving the old queens, until you are sure the new one is safely introduced and laying. A queen can be introduced to almost any colony, if you will take the necessary pains. Bear in mind that good behavior at the start, is not always a sure indication of success. Read what this friend says:

I introduced one of the queens into a colony for one of my neighbors. She was accepted and is now laying. Mine, the *rascals* received with smiles and carresses, but afterwards despatched her, I suppose, as I cannot find her and there are no eggs.

Pittsburgh, Iowa, July 19th, 1878.

R. H. THOMPSON.

IS HONEY HEALTHY, ETC.

I HAVE had the dyspepsia for several years, and when I commenced transferring bees this spring I ate from one-half to three-fourths pounds of honey every day, until transferring time was over. Now I am perfectly well and weigh ten pounds more than I did the first of April. My wife was afflicted with a sore throat, which the doctor said would terminate in consumption if not properly cared for, and that it would require three months' treatment with great care to cure her. She commenced eating a little honey every day, and in three weeks her throat was as well as ever. It is easy medicine to take; try it.

I will challenge any one man on transferring the greatest number of swarms this spring. I have transferred 140, and use the Gallup hive. In transferring so many, I lost only one swarm, and it left in two days, leaving the hive full of honey and brood. What is the cause of that?

That $1.50 queen which I got from you proved to be a good one; her young all have three yellow bands.

There has been much blowing through GLEANINGS about the Italians—that they can be handled like so many flies; but my experience is that they are the crossest things I ever saw in the shape of bees. If any one, without any protection, were to uncover them and take out a frame, they would sting him to death in five minutes; while I can handle my blacks with perfect ease and safety. Still I like the little yellow fellows. I have 34 black colonies and 8 Italians, all in good condition. M. D. TYLER.

Manchester, O., July 22, 1878.

Well, I have never had the dyspepsia, but I have had—a fashion of eating green apples when they first come, a little in excess, and after such indiscretion, a little wisdom in diet is needed. I have found that a generous allowance of clover honey, well ripened, a loaf of nice bread, good nice yellow butter, and a pitcher of milk, is all the medicine *I* need. and, as our friend suggests, it is not at all bad to take.

I do not know why the bees swarmed out, but if I could have examined the hive, perhaps a reason might be assigned. You certainly have a claim to be called an experienced hand at transferring. If your Italians are crosser than your blacks, I should be much inclined to call them hybrids, even if the workers are 3 banded, and you did purchase the queen of me. They may, however, be cross Italians; for bees, both blacks and Italians, vary much in disposition.

HATCHING QUEENS UNDER A SITTING HEN. GETTING THEM FERTILIZED WITHOUT INTRODUCING, ETC.

BY OUR ORIGINAL TEXAN CORRESPONDENT.

HERE we come. I have a queenless stock of bees which I found in a bee tree a few days ago, and in hiving them, some of us big footed folks killed the queen—stepped on her. So enclosed find $1.90, for which please send, by return mail, a dollar queen and 1 lb. of fdn. to put her on, with the big swarm of black bees, just to give the fdn. a trial in the brood chamber. Now, friend Root, I have been taking GLEANINGS nearly a year, and "nary a word" can I find in any of them, telling a man how to raise his own queens. Some of your subscribers said the way to produce a good lot of queen cells was to hang a frame of brood in a queenless hive, &c. This we can do, but to let them stay there don't make us any queens; and if we put this frame of cells where there is a queen, the queen or bees would tear them all down. After a hive swarms I can go there and get queen cells as soon as they are sealed over, and hatch them most any where, in a nucleus, or put them in a sufficient cage and hatch them under a sitting hen. Very well, but then comes the bigest trouble of all; how do I get them fertilized? and where will I keep them until they are ready to meet the drone? This is the puzzle with me; my nuclei won't keep them when they have a queen, and if I take them out in the back yard, at about 5 days old, when drones are flying plenty, and turn them out, they won't fly out and get fertilized and then return to the cage again. In a few minutes after I liberate her, I find her at the entrance of some hive with a ball of bees round her, killing her. Now, my friend, I am away down here in Texas, and have no neighboring bee-keeper to assist me, and I have 38 hives. I would like to Italianize, and it is a big expense to buy all my queens when I could get an imported one and raise my own queens. E. J. ATCHLEY.

Lancaster, Dallas Co., Texas.

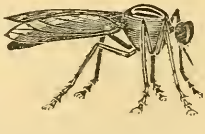
Artificial swarming, in the A B C, will tell you how to raise queens, friend F., and in the July number of last year I gave you quite a lengthy article on queen rearing, with illustrations. If you have really hatched queens under a sitting hen, you deserve a medal for original experiment. It seems you have gone still further, and pushed boldly into the unexplored region of attempting to have queens take their flight and meet the drones, without being introduced to a colony. I have often thought of this, but hardly dared risk losing queens in that way. You will have to get some kind of a little hive for them, and a piece of comb containing unsealed brood, or neither the queen nor bees will be likely to return after their flight. Our neighbor, Shaw, has succeeded in getting queens fertilized in little hives that could almost be put in one's overcoat pocket, but he had so much trouble with swarming out and robbing that he has abandoned them. It has just now occurred to me that if we had a locality so far away from other bees that there would be no danger from robbing, we might, by carrying a hive full of drones, get queens of the right age fertilized in a very short time, and, possibly, by simply letting them out of the queen cages, one at a time. I once hatched a lot of queens in wire cages, in a hive, and let them out one at a time when eight days old. When they came back showing marks of fertilization, they were caught and caged before they had time to get into the hive. The plan succeeded, but we sometimes had to wait a couple of hours before they came back, and many of them had to fly several times before they were successful. I think queens will, eventually, be fertilized in some such way, without being introduced to a colony or nucleus at all. Who will work out the problem? Queens could be raised ready to be fertilized for 25c. or less, without any trouble; but the great expense is in keeping a colony or nucleus just on purpose to get them to laying. A queen that is kept caged until eight days cannot be introduced by any means that I know of, and even if she could, it is about as much work to introduce queens as it is to raise them. Is it possible to get them fertilized, without introducing them to hives? If our hive contained nothing but drones, there could be no danger in letting the queens right out; and, it may be, not even if we let out a *half dozen at once*. I think they would all go back into the hive with the drones.

BEE KILLER.

I SEND you a cage, with an insect that I found with a bee this morning. How he kills the bee I can't tell; but when he has once accomplished that, he holds to something with one foot in a swinging position, and holds the bee with his other foot. In an instant he can drive his bill plumb up into a bee, seemingly up into his honey sack, and suck the honey. It is not easily scared, as you can handle the cage roughly, and he does not let go the bee. If he arrives alive, give him a bee and see his actions. T. B. PARKER.

Goldsboro, N. C., July 15th, 1878.

The insect spoken of above was received dead. It is undoubtedly the "bee-killer," or *Asilus Missouriensis*, described by Prof. A. J. Cook in his "Manual of the Apiary," page 267, of 3d edition. Here is an engraving made from the specimen we received.



It is found only in the southern part of our country. Prof. Cook describes it as a two winged fly, strong, and very quick on the wing, which captures the bee, and feeds on its fluids.

JOINER.

FRIEND NOVICE: I received the smoker in good order and am well pleased with it.

FUEL FOR SMOKERS.

After trying several kinds of fuel, I give the preference to cotton rags, as making the most smoke and least heat, and being easiest got, when paper rags are but 2 cts. per pound. A half pound will burn all day.

SMALL BROOD NEST FOR COMB HONEY.

I am in the section honey business, have got on 2000 sections, and the bees are working in most of them. I fully agree with Doolittle, after giving the matter a thorough test, that a small brood nest will give the most section honey. Seven L. frames I find amply sufficient. Neighbor Stewart, of Orion, thinks 10 to 12 better, and we will both *know* this fall, as he uses a hive with that capacity. I hive a swarm on 7 frames and two cases of sections; by the time they get their frames full, the sections are ready to raise; then I put two more below and put on upper story.

SIZE OF FDN. FOR BROOD FRAMES.

I have also tried three 5 inch strips of fdn. in brood frames, and it makes as good a comb as the wide piece, as far as I can see. The size of a sheet of fdn. which you send out for L. frames is too wide for our bees. It almost always stretches and touches the bottom bar, and then lops over. It should be ¾ of an inch narrower for full swarms, in hot weather.

FASTENING THE FDN. IN THE FRAMES.

I am surprised that you adhere to the old plan of buttering the fdn. on the top bar with a knife. With my cementing apparatus, I can beat any two of your smartest girls, fastening fdn. in brood frames. You want to make your cement of beeswax and rosin, equal parts; then fix two boards just the size of your frames inside, cleated around the edge so as to go inside the frame just about half way; set them both on your bench, inclined at an angle of 45° from the perpendicular and horizontal; drop on your frame, top bar down; lay on a sheet of fdn.: have your cement over a lamp turned so as to just melt it; use a tin teaspoon bent to a small spout, and have a wet sponge in one hand, to wet the board with before laying on the frame; pour a teaspoonful in the upper corner, and go to the next board while that one cools. Why, I can stick them in so tight you can't pull them out without tearing them. To stick fdn. in sections, my wife is the "boss," and you can't see any rosin when she gets done. Besides, rosin and beeswax mixed taste no worse than propolis, even if anyone should be so greedy as to scrape the box.

HONEY PITCHERS WANTED.

Now, Novice, I have a favor to ask of you. Get Fahnestock or Muth to get us up a honey pitcher to hold extracted honey on the dining table. Have them make it of semi-transparent glass to imitate beeswax, and have it blown in a mold taken from a filled section box; then give it a nice cut off top and a metal handle. Make it look as tempting as the most beautiful comb of clover honey. Call it the Langstroth honey pitcher, and I predict that there will soon be one on almost every table in the country, if the price is not higher than for other pitchers. Do you get the idea? I saw some vases the other day that were said to be glass, but looked like the purest wax. R. L. JOINER.

Wyoming Wis., July 10, 1878.

One cent a day is certainly not much for fuel, but as dry, rotten, elm wood costs nothing, I am inclined to think many of our readers will prefer it. It is an excellent idea in the apiary, to make every thing count; prevent out-goes in every way possible; save every scrap of wax, every drop of honey, every black and hybrid queen; and get ready for close times, and drouths with no honey. If they do not come, it won't hurt you any.

In very hot weather, the sheets of fdn. need to be a little shorter than in the spring and fall. It is true, 5 inch strips will produce all worker comb usually, but during a a sudden yield, they are apt to build drone comb below, as well as to lose much time that would be saved by having the strips go clear down.

A convenient honey pitcher would certainly be desirable, providing it is so cheap that it would not conflict with what I have just said about saving the pennies. Will the parties named see what can be done in the matter?

SOME OF A BEGINNER'S TROUBLES.

I HAVE now 7 colonies of bees (and 4 bee trees), all blacks except one, which has an Italian queen purchased of friend Sayles. I purchased 2 but lost one in introducing.

INTRODUCING.

I followed directions as given in A B C. I took 8 frames of brood, from different hives, and put them into an empty hive, then I smoked them thoroughly, and sprinkled them with sweetened water, and let some syrup drop on the queen as she emerged from the cage; but instead of going down among the combs, she rose in the air and disappeared. I thought I would never see her again, but about an hour afterward, on lifting the hive, I found her on the bottom board inside of a ball of bees. I re-caged her and left the cage on the top of the frames for about 40 hours, when I went through the same process again; she rose in the air, and after flying around awhile, entered another hive. I secured her again, and made another trial; but instead of going down among the combs, she flew off again, and I have never seen her since, although I watched the hive closely for 4 or 5 hours. What do you think was the cause of her acting so strangely? and where do you think she would go to? I introduced the other in the same manner, and she is now doing finely.

ANGRY SWARMS.

I had a swarm issue to-day, and after hiving and giving them a frame of brood as directed in A B C, I thought they were safe; but, in about an hour, they swarmed out again, and clustered on the trunk of a tree, and had to be hived again. You say in A B C, that it makes *you* mad to hear people speak of *bees* being mad; now, friend Root, I think, if you had been around when they were being hived the second time, you would surely have pronounced them *mad bees*. As they were being brushed off the tree they were the maddest bees I ever saw, and I would have stood a poor chance, had I not been well protected by veil and gloves. As it was I got three stings. I have heard it said that swarming bees never sting unless pinched, how is this?

I have burned up all the rags I could find, besides nearly smoking my eyes out, trying to blow smoke into the hives, and so I have concluded to try one of your smokers. J. R. YOUNG.

Oglesby, Ill., July 14th, 1878.

If you do not choose to clip your queen, daub some honey on her wings, and she will then be unable to fly, while being released from her cage. We find a colony every little while, that will not accept a queen at all, not even if she is tried a couple of weeks. Our plan is to then take her to another stock. She will often be there accepted at once. I have seen hybrid stocks that were very cross while being hived. Almost any bees are apt to be cross, while being brushed from the trunk of a tree. I would have used a smoker, instead of a brush, as much as possible at least. Brush softly, and don't pinch them. Are you sure it was not those same gloves that made them so mad?

DO HENS EAT BEES.—Much has been said pro and con on this question, and it has been generally decided in the negative; but we now have a case where it does appear beyond doubt that they do *sometimes* eat them. A bee-keeper at Los Angeles says he has repeatedly watched hens take up a position in front of a stand of bees and there and then pick them up one after another and devour them. To strengthen this statement, he says that he dispatched one of the hens caught in the act, and found in her crop the no small number of 150 bees. A few dozen fowls let run in an apiary in such a bad year as 1877 in California, would soon depopulate the stands, saying nothing of the large number that die of starvation. We have noticed hens eat dead bees, but never saw them take them from the entrance. Neither do they eat a dead bee that is as dry and old as an Egyptian mummy. They take them when they are soft and plump.—*Western Rural.*

A VISIT WITH ONE OF THE A B C CLASS.

WHILE I read in GLEANINGS that A took so many hundred or thousand pounds of honey, and that B wintered so many colonies and brought them out "all safe," I am free to confess that I am *not half* so much *interested* in, or *profited* by, such things, as I am in what may seem to many to be very little things; such as, how to get straight combs, how to clip queens' wings, how to prevent swarms going together, and the thousand and one *little every-day* incidents and manipulations of the apiary. By the way, what has befallen the column or two of "Queries and Answers," which used to make the columns of GLEANINGS so interesting and *instructive* to us *novices?* I have often thought that the letters of *beginners*, telling their difficulties, and *how they overcame them* were to me very profitable, and thinking that some others, perhaps, feel just as I do, I will put down a few things which may possibly call forth something from Novice in the next "A B C" lesson.

CLIPPING QUEENS' WINGS; THE SEQUEL.

Having read much about clipping queens' wings as a preventive of absconding, and having 3 Italian queens which I would rather not lose, I overhauled their hives in May, and my daughter clipped their wings after the manner recommended by some lady; viz., taking them to a room and allowing them to run on the window panes. The operation was successful; but whoever invented the "preventive," or related it, left the story *unfinished*, having given *no directions* about how to manage when the swarm would come off, nor even intimating that there might be trouble.

Well, I found out "by experience." When the first swarm came off, they were not noticed until all were out of the hive, and a fruitless search had been made by them for their queen. When I found her in the grass not a bee was near her, and the question came up; how will I get her fixed so that they will find her? Putting her on the brush end of a small sapling (used for a "swarm catcher" or hiver), I raised it up where the bees were flying. Not one came. Seeing them pretty thick near the limbs of an apple tree a rod distant, I went there; but with *no better success*. Suspecting that may be the lady was not there, I examined; when lo! she was *gone*. Then followed a *hunt* in the grass. The search being successful, I directed my niece to get some thin stuff and fasten her in it, and then we would tie the whole in the hiver. This being done, and she being put close to where they were flying thickly, examining a limb of the apple tree, a few bees—perhaps a dozen—lighted on the gauzy cage; but they were very restless, and seemed *dissatisfied* with her confinement. By this time, the swarm had begun to *return* to the old hive, but few of them entered however. Putting the queen (liberated from confinement) and a few bees into a Simplicity provided with fdn., I set the hive partly over the mass near the entrance of the old hive, being sure that they would soon discover the object of their search and fill the new hive. After waiting a while I opened the hive, when lo! there she was *between the frames and side* of the hive with about 4 or 6 bees attending her. Feeling that *that* effort at swarming was a *failure*, I concluded to return her to the hive. But, mark you! when I dropped her near the entrance, expecting that all would be glad to see her, and that she would enter in and take full possession, they "balled" her *instantly;* and a *more* excited set of little fellows I never saw. I used various devices, lifting them up, trying to separate the bunch, etc., etc., in order to *liberate* her, but all to no purpose. They clung to her like green burs to wool. I then got a tumbler and set down over the bunch till after dinner. Armed with a Simplicity smoker, charged and going, I repaired again to the field of conflict, to find those inside the glass just holding the fort as they had been from the first, and those *outside all in commotion*. I opened the smoke battery on the outsiders, who soon cried for quarter and began to make into the hive as fast as they could scramble. Then lifting the tumbler I poured a volume into the rebels, who instantly let go their prey and followed quietly, the queen making common time with them. This ended the trouble.—A 2d swarm came off and went through a similar performance, save the "balling." As they were beginning to *return* to the hive before I discovered that they were out, I made no effort to settle them, but returned the queen *at once* to her hive. Now, why the difference in the treatment of the two queens? My theory is that the first one, being held so long in my hands, had acquired a foreign scent and they did not recognize her.

Within 3 or 4 days in my absence, both swarms came off *again* and simultaneously. The queens were found on the ground. The swarms had *settled together*. Two "hivers" were made ready, a queen put on each, and the bees, being shaken from their place, divided and settled about equally with each queen. So they were put in their new homes; but the children say "Pa, *we* don't want any more queens clipped." But I have *farther experience* with clipped queens. A swarm, having come off, was put in the hive in the afternoon. Next morning, I saw *evident signs of discontent*,—running up the sides of the hive, flying off a few feet, then returning, and a general commotion. Being determined to prepare for the emergency which was evidently coming, I had several buckets of water ready to be used at a moment's warning. About 10 o'clock A. M., the cry was raised, "*Here they come.*" Taking time by the forelock, I wet them down as they came out, while others attended to those in the air. Presently I said to myself, "why not shut in what remain." 'Twas done. Those in the air, after sailing around a while, came back and began to alight on the hive, by which I knew the queen was not among them. After they became somewhat quiet, I opened the entrance, and they began to go in quite lively. When perhape ¼ of them had entered, they suddenly stopped and began to "boil out" again. I closed the door. All outside went off on a 2d excursion, but soon returned and settled down quietly. I determined to leave them until sunset and *then* see if they would go in. I was expecting another swarm and was thankful they had not come off in the commotion. About 3 P. M., *they* came and settled, and were quietly hived, the others remaining nicely on the outside of their hive. I was just beginning to congratulate myself upon how well all had worked, when lo! a commotion among the malcontents. The air was filled with them on their way to the newly hived colony. Each swarm being very large, they *more than filled* the hive. About sunset I opened the discontented hive, found the queen, and clipped her wings. Next morning I discovered that they were still discontented. About 8 o'clock they came out. Finding the queen, I put her on a little apple tree close to the hive, where soon 3 or 4 bees found her and communicated the news to others, a *few* of whom came and clustered. But nearly all went to join those which had betaken themselves to the colony of the day before. The outside of that hive being now covered 2 inches deep with those which could not lodge within (the weather being intensely warm), I thought I would try an experiment on them. Taking the clipped queen, I put her with a few bees in a new hive and placing it on top of the other hive, I began transferring the outsiders to the new home. For a while it seemed to work admirably. They went up by feather and paddle and brush, till thousands of them, indeed about all that were on the outside, were safely housed in the new home. Just as I was beginning to congratulate myself on the success of a plan not laid down in the books, the familiar cry was raised, "Here they come." Into the air they go in wild commotion. Knowing that the queen could not fly I at once began to look for her; but she was not to be found. I supposed she was lost. I didn't care much, as her family seemed not to like her. In a few minutes, the rovers began to return and enter the hive to which they had *first* fled; viz., the colony of the day before, just beneath the hive from which they had just emerged. I soon noticed discontent and commotion in this hive, which had been quiet and *very industrious* all the morning. Whereas *all* had *crowded into* the hive on their return, they now began to *pour out* of one entrance and settle on the alighting board and underneath the hive. All becoming quiet after a while, I left them to attend to other matters. About 11:30 o'clock, the cry was raised once more; "*Here* they come." They *poured* out so that the air was darkened by them; they were the largest single collection of bees that I ever saw. I perceived in a moment, that they were "off for the timber" and made no effort to stop them. As they went slowly, and many of them were within 5 feet of the ground, I decided to keep them company so long as they kept that gait. They only went about ¼ of a mile, when they began to enter a sugar tree about 35 feet from the ground. The tree was about 150 yds. from the door of a farm house. In the evening, I learned from the proprietor of the house, that about 4 or 5 o'clock he had gone out to look at them, when he discovered a swarm hanging on one of the limbs on the same tree, about 20 feet from the ground. They presently took flight. He followed them some distance, and thought he "could *easily* have stopped them, as many of them were not more than 3 feet from the ground, "but he "*got frightened* for fear they would light on him," so he let them go. Now, to return to the hives which they had left; I found evidence that the bees had "worked like beavers," judging from the amount of comb built, and the change made on the fdn. On one comb were about a pint, or 1½ pints, of bees very quietly clinging to each other as in comb building, while some were going out and in as in regular honey gathering. On examination, I found my clipped queen quietly walking about; I diminished her quarters, determined to see what she would make. Next morning, a swarm having been hived near her home, "Here they come again" was heard. The few bees she had *all* forsook her and came to the new colony. I caught her and put an end to her career.

Several questions arise. Was the swarm seen hanging to the sugar tree the *same* that had entered it, or another? If the same, why did they leave their selected home? Why *alight* on the same tree and so much lower down? Did any one ever know of such a case? And as to the queen whose wings were clipped, why did the bees leave her? I have conjectured that, being young, she may not have been fertilized, and being disabled from flying, their instinct taught them the consequences. What do you think on the various points? In A B C, caution beginners about clipping, or tell how to manage; also to be careful never to clip young queens.

WILL TOADS CATCH BEES?

I have read statements on the affirmative, but never saw it until a few weeks since. One bright morning, I espied a large toad making towards a colony of fine Italians, head erect and eyes sparkling. I watched him. Straight to the hive he went, and perched his forefeet on the alighting board. He went through the motions of a cat watching for a mouse. Directly, one unfortunate bee, coming home, struck on the side of the hive and tumbled down. Toady had him in less time than you could wink, and seemed to smack his lips as over a dainty morsel. I watched for signs of sickness but they came not. He was ready for more. I removed him to the garden. I have several times noticed another about twilight, coming towards the hives, but have not "proved it on him" yet.

PATENTS.

I saw a man, a few days since, who set up a claim that *he* had *patented* "*the bottomless honey box*;" i. e. as he said; "No one can use frames with anything over them, unless there is a *honey board between*." On my telling him that I had known that to be done *years* ago, *had done it myself*, he said; "Yes, I know people are doing it; but they are *infringing on my patent*, and as soon as I get things in order, I am going to put them through." Here, thought I, is another "patent right swindle," and I'll write to Mr. Root about it, and ask him if this thing hasn't been done *years* ago. He says his patent is dated 1870. I know I have read in GLEANINGS about putting both boxes and section frames *right over the brood* comb frames, without any honey board between. I wish you would look this thing up, and give us an item in GLEANINGS for Aug., so that we may be ready for our friend when he calls round to collect money *for the privilege of exercising common sense*.

A neighbor called on me last week to double up a couple of feeble swarms, one 48 hours, the other 10 hours old. In searching for the queen in the older hive, she was found running up the division board. Before I could catch her, she took wing; not, however, until I had quite distinctly noticed an appendage of which I have read and heard, but never saw. Sorry she escaped entirely, as I would have preserved her in alcohol. Your smoker did good service. The gentleman offered me $1 for my trouble, and when I refused it, he told me to send for GLEANINGS. So you see by my refusing compensation *you* got a subscriber. J. H. BUCHANAN.

Huntsville, O., July 9, 1878.

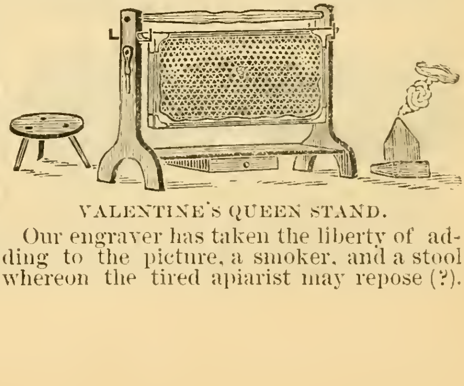
I am afraid, my friend, that notes and queries was dropped because beginners tell such very long stories when they ask their questions, just as you have done. Besides, the A B C is now beginning to answer the greater part of them. Much has been said in back Nos., in regard to looking out for queens with clipped wings, during swarming time, and repeated cautions have been given against clipping queens before they are fertilized. Had your first queen been put in a cage, and tied securely to your brush, I opine that your troubles would all have been saved. So much for not doing things thoroughly. The rampage your bees got into was caused by a kind of mania that sometimes seems to possess them for a few days, during the swarming season. There have been a great many complaints this season, of bees leaving their hives without any apparent cause, and even, at times, without any queen, as you have narrated. One crazy swarm in an apiary will start the fever, and at the very sound of the swarming note, all in the vicinity seem to become suddenly demoralized; at such time they will desert queen, brood, and well filled combs, and rush out to join the rioters.

We have not, at present, a clipped queen in our apiary of over 200 hives, and it is mostly for the reasons you have given. Such excessive swarming results in such losses, that I have rather favored artificial divisions; we have had scarcely a touch of the swarming mania this season, and all have worked right along, uninterruptedly. Of course, sheets of fdn. and frames of sections have been furnished unsparingly to all stocks. It may be the swarm deserted the tree, after going into it. Why do you not look and see if they are still there? You are right about the toads.

ANOTHER COMB HOLDER.

YOUR cut, in July GLEANINGS, of your comb holder is very nearly like one we used last season; but we did not like it so well as one I made this spring, a rough drawing of which I send you. I don't know that any one would like one; if they would, nearly any one can make something similar. Ours is 24 inches high; the standards are 1½ x ⅞ in.; a piece 1¼ in. square runs across the top to hold it together, and for a handle to lift it by; the shelf is 12 inches wide, is placed 4 inches below the bottom of the frame when hanging on the arms of the stand. This shelf is handy to lay cages &c. on. There is a drawer 6x8x2 in. under the shelf, in which we keep a dozen, more or less, of queen cages, a pair of small curved pointed scissors, a slim sharp knife, etc. Our Queen Stand (as we call it) weighs just 4 lbs. We leave it out in the bee-yard, as it is well painted and a groove is cut around on the under side of the shelf so that no water can get into the drawer. When we are in the yard, and happen to want to look into a hive, the stand and its contents are ready near by. T. M. VALENTINE.

Carlinville, Ill.



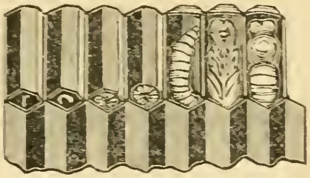
VALENTINE'S QUEEN STAND.

Our engraver has taken the liberty of adding to the picture, a smoker, and a stool whereon the tired apiarist may repose (?).

while inserting queen cell, etc. He has also hung an all metal screw driver on one of the posts, as you see, and a stout screw driver is a very handy tool in an apiary, as most of you have probably experienced.

FROM THE EGG, TO THE BEE.

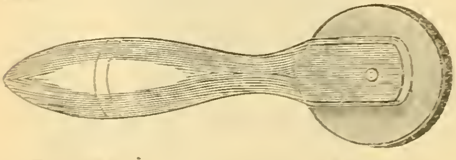
OUR engraver has been amusing himself, by seeing how clearly he could portray the embryo bee, at different ages.



The figures underneath are intended to represent the age in days. First is the egg just as it is laid; next the larva just after it has broken the egg shell on the third day. During the fourth and fifth days, they grow very rapidly, but it is difficult to fix any precise mark, in regard to the size. On the 7th day, the larva has straightened himself out, and the worker bees have capped him over. I have made a pretty accurate experiment on this point, and it was just 6 days and 7 hours after the first egg was laid, when they got it completely capped over. Just when they begin to have legs and eyes, I do not know; but I have found that the wings are about the last part of the work. The bees leave them bareheaded, sometimes, after they get to be about 16 or 17 days old. If I am correct, they never cap over these bareheaded bees, but let them hatch out, without having any capping to gnaw off. We are all of us too ignorant, by far, on this matter, and I suggest that we set to work and investigate the matter thoroughly. The eggs of the common fowl have been broken, and drawings made of the embryo, every day from the first to the 21st. Can we not do as much for the science of apiculture? I will give $5.00 to the person who sends me the best set of drawings of the embryo bee, during the 21 days from the egg to the bee, with accompanying notes.

FASTENING THE FDN. IN THE FRAMES.

OUR friend, A. L. Foreman, of White Hall, Ills., who discovered the use of starch for moistening the rolls while rolling fdn., has sent us a sample of what he calls



FOREMAN'S EUREKA FDN. FASTENER.

The wheel is made of some hard wood, cherry or apple for instance, and is nearly ¾ of an inch thick, by about 1½ inches in diameter. The handle is about 5 inches long. A sheet of fdn. is to be laid against the comb guide or top bar, as you see fit, and then the wheel, after being dipped in honey, is to be rolled over it, so as to press the wax firmly into the dry wood. A straight edge is used to run the wheel against, that it may be guided just where we want it. The principal objection that now presents itself to me is that the wheel cannot be run close up on the corners of the fdn. Friend F. remedies this, by attaching the fdn. to the top bar, before the frame is nailed up. I hardly think this plan will be liked generally. It might answer nicely for section boxes, but when we consider the difficulty of getting the sheets exactly in the centre of the top bar, I think I should consider the grooving rather preferable.

MY AUTOMATIC SWARMING HOBBY.

SOME WONDERFUL AND UNEXPECTED DEVELOPMENTS.

THIS spring, I fixed up 3 decoy hives—discarded hives of 2,340 cubic inches. I tacked basswood bark around the entrance, put in some nice white comb starters, and fastened 2 in the forks of leafy trees, and one near the top of a ledge of rocks; all were near the apiary, one only 16 ft. from the house. On, and before, the 27th of June, bees were flying in and out the latter hive. That evening I brought from neighbor T——'s a new swarm of that day. Early next morning, I shook them in front of their permanent hive. They took wing, went straight to the tree and entered the decoy hive. As their queen was clipped they returned. I think they had selected the hive before (?) swarming, had reconsidered on being hived, then on being disturbed, decided to carry out their first plan.

I began to wonder how the other hives were getting along, went to the other tree, and lo! a swarm of blacks had been working there for 2 or 3 days. It was a small swarm of less than a quart. To-day, you can count a dozen bees in and around the first hive. I think they are not "hunting water."

OLIVER FOSTER.

Mt. Vernon, Iowa, July 8th, 1878.

I was just ready to swing my hat, at the success of the above, when the following came to hand. The writer almost ought to be put in the "Growlery."

For months, I have threatened to "put my foot" on your scheme for *stealing* bees. What you are trying to get into, in your part of the world, has, for many years, in puritanical Mass., been stamped as a *heresy* and a *fraud*. If there is a disreputable man in community who would steal, if he could legally, he is sure to stick up his hives all through the woods, and thus entice and coax bees—not to light, but to decamp. Every honorable bee-keeper in this section who discovers a hive thus exposed, even though it is in the owner's woods, makes it a point to smash that hive before he leaves it. This is done openly and defiantly, and all the people say amen. Such traps are hunted for, by organized bands, as wild beasts might be on the frontier. The practice is an unmitigated fraud and the greatest drawback upon honest bee-keepers. Every swarm of bees that ever left me has followed directly into such hives, placed there purposely, by thieves, to steal my bees. But for them, my bees would not have left. I, and all others, however, make a practice of setting a guard over the hive until night and then appropriate it.

Hoping that this method of stealing bees will be reprobated by all honest men, and especially in GLEANINGS, I am M. H. A. EVANS.

Granitesville, Mass., July 4th, 1878.

Now, Friend E., I do not know but you will think me a hardened sinner, but the fact is that I am much more interested in hearing you state that the plan really succeeds, than I am alarmed at the injustice that may be done any one. If any one decoys my bees. all right; if they wish to keep them, I am willing. If I should be so fortunate as to catch any body's else, I will let them have them most cheerfully. If we can persuade the bees that it is a better place in these hives we have fixed for them than they can find in the woods. I shall think we are making great progress. Our next friend thinks it rather doubtful, however. Listen:

Don't let your A B C class run away with the idea of enticing stray swarms into those honey boxes out in the woods, fields, or any where else. They may now and then get a swarm, but such a thing has never been known here, and most of us have hives, at all seasons, standing ready for bees to move in. In a country where bees are very plenty and timber very scarce, it might succeed; but those who live near old timber will have their trouble for their pains. Bees are doing well here, with nice showers, warm sun, plenty of white clover. Good corn weather is always good honey weather with us.

Wyoming, Wis., July 10th, 1878. R. L. JOINER.

Well. I am afraid you are about right, friend J., for we have had a decoy hive up in a peach tree almost all summer, and "nary a bee"—hold on. there are individual bees buzzing about the hive nearly all the time, but not a swarm has yet gone into it, although several swarms have come very near lighting on the tree. The hive is a painted 3 frame nucleus. and that, perhaps, was not sufficiently back woods like.

COMB FDN. AT ONE OPERATION.

A NEW PROCESS FOR MAKING IT.

I MADE some fdn. by dipping a plaster of Paris cast. It makes exquisite comb on *one side*, but the other side is *awfully irregular*. I made a machine with two casts hinged together that makes the impression on both sides; I hinged two frames together, placed fdn. between and a thin board on the outside of each frame; then filled in both sides of fdn. with plaster of Paris. It is to be dipped in the wax while open, then closed and cooled in water. I enclose a sample. Please tell us *just how* to make the casts. I have failed to get a perfect surface on account of bubbles of air, which leave holes.

Mt. Vernon, Iowa, July 1st, 1878.

July 11th:—I am getting "enthusiastic" over those plaster of Paris fdn. dipping plates. I have just been "running off" some full sized sheets, and they are *quite perfect*. After cooling in water I dip one of the plates, which are opened straight, then quickly raise and press it lightly with the upper plate, while in a horizontal position: cool it again and "peel 'er off." I never saw your $100 machine work, but would like to "run you a race." A board should be fastened to the boiler to rest the plates on. As I do not dip quite to the hinge, there is no clogging. Now, if these plates could be made of metal instead of plaster of Paris, they would last a life time and I think the work would compare favorably as to quality and speed, with the expensive machines.

Could you make us a pair or tell us how? and what would be the cost for my size, 8½x11? It is not nearly as hard, however, on the plaster of Paris casts as I supposed it would be, only a very light pressure being required while the wax is melted, and, as they are not expensive, I find *it will pay*.

Mt. Vernon, Iowa. OLIVER FOSTER.

At present writing, I am inclined to think, friend F., that you have struck on something quite valuable. When Perrine carried off my first pair of rolls, and afterward wrote that he had patented the idea of rolls, I made some experiments by dipping embossed glass, in the way you have mentioned, and actually set about having a couple of glass plates made to be used exactly as you have used the plaster. I confess that the idea never occurred to me of using plaster casts for the purpose, although I had already made very beautiful plain sheets with the aid of plaster dipping plates. The sheets you make are not as nice as those rolled between metal rollers, it is true, yet perhaps the bees will use them just as well.

As you make the sheets just the size wanted, it will save rolling and dipping the scraps as we have to do. I am inclined to doubt your being able to make a pair of metal plates work as nicely as you do the plaster, for unless the metal is kept at just about such a temperature, the wax will stick badly. I have had visions this afternoon of a large pair of metal rollers made hollow so that a stream of cold water might be kept running through them, to keep them cool: well, these rollers I would have dip into melted wax so that a sheet of fdn. could be rolled out on the other side, a "mile long," as we have so long talked about. I think it very likely there will be something done, but it will take a great deal of money for experiments, before all the conditions are successfully worked out. Another thing: it is a great convenience and saving of time and money, to have a machine so that each bee-keeper can make his own fdn., out of his own wax, during the dull seasons of the year. If the experiments of friend Foster should result in a fdn. machine that would not cost over $5 or $10, I shall rejoice with you, even if it does strike something in the same way, as it did when honey went from 25c to only 16c per lb. More than that, I will set about some experiments immediately, toward helping it along. For making nice plaster casts of the fdn., see Feb. GLEANINGS, for 1876. I do not know how we can make plates for the purpose, unless they are electrotyped from a sheet of fdn.

AMONG THE BEES.

EXPERIENCE IN QUEEN BUYING.

I THINK it is time that I tell you how my tested queen is getting along. She beats every thing to lay that I ever saw: she was put in my weakest swarm because the rest were hybrids, but she was the first to swarm of my four colonies: and they did not dwindle like my black stocks. I have raised 8 or 10 queens from her and I believe they are nicer than their mother, and produce as nice workers. I will send you one of them soon for your inspection.

I received a nice imported queen from Blood, the 9th of this month, and on the 15th, found her filling the combs with eggs. I have just received my smoker and tried it: don't it make them "git"? I think, in a few days, all I will have to do will be to go and puff it at them without any smoke, and they will "give in."

PAINTING HIVES INSIDE.

I am putting my bees in chaff hives well painted, white, inside and out. I think it makes the bees proud to paint their houses inside, by the way they take to them.

A GOOD DAY'S WORK.

Our Lamar, Mo., friend, speaks of doing a big day's work. I can head him a little I think. On the 8th inst. I transferred one colony at home, and settled and hived one swarm: then got into a wagon, taking a hive with me, went 4 miles, transferred one more from an old box hive, before noon; ate my dinner, went 2 miles further and got a load of chaff, and on the road home, found a bee tree. I saw them from the road as I was driving along. Does this beat Lamar or not?

Lots of bees have swarmed and run off this summer, but I haven't lost any. My 4 hives have swelled to 11 and two more will swarm in a few days. We are getting box honey too. Some hives have filled six 5 lb. boxes already.

GROWLERY.

In reading the list of "growlers," I almost wished that I had one word to say, after all the orders I have sent you for myself and others. I am well pleased with my own goods, and better pleased to see my neighbors pleased with everything that they get of you. I lost my last queen that you sent me by my carelessness, after you had lost three by sending in cold weather; but I soon filled her place with one reared from the tested one you sent me, that can not be beaten. JAMES PARSHALL.

Union Valley, Mo., July 17th, 1878.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

I DARE not make this department very long this month, for one friend "growled" more than all the rest because I occupied so much space in a way that did not particularly benefit anybody, and I fear there is considerable truth in the remark. The first one in the list last month was more wronged than I supposed, for he did furnish samples of what he wanted, and those samples were some of my own work of a previous season, too. The man who would not receive the buckwheat, not only apologized but sent more than half the money to pay the express charges, when he found it came out of my pocket, and not that of the express Co's. W. H. B. has not as yet sent in any bill, and all have treated me in a kinder way than I felt I had any reason to expect. This is not a hard world to get along in, my friends, if one behaves himself half decently.

I return to-day the "tested" queen that you sent me June 21st. I have carefully tested her, and I find that she breeds an indifferent lot of bees; some of them are well marked, but a great many have but one band. Now you can take my word for this, as I had her in a colony where there was no other brood, and I cannot be mistaken. Now, Mr. Root, I cannot think that you are a "fraud," or that you wish to act the rogue, but I must confess that I was disappointed and a little out of humor when I found that the queen wasn't pure. I had gone to the trouble to raise several young queens from this "tested" queen, as you called her, and what are they worth? I might have raised good queens from my own stock while I was bothering with this one; but there is no use crying over spilled milk. I will tell you what I want you to do. If you can send me a tested queen reared from an imported mother, that is large and yellow, and one that will produce all three-banded workers, you may do so, providing you send her immediately. L. W. V.

Washington, Pa., July 20, 1878.

That is right; I am glad you sent her back. I have had one other similar complaint, and it had, before this, decided me on testing all queens sold, in my own apiary. When at work in the apiary, examining hives, taking off honey, etc., we write on the hive the grade and quality of the queen. Some are marked $3.00 queens; some $2.50; some $2.00; and some $1.50. There are but few of the former and but few of the latter; but when we have an order for a queen, we know just where to find exactly the one we want. It is expensive business, I well know, to introduce a queen, and then find her not what you bought her for.

CAN WE SELL OUR HONEY?

A "CANDIED" TALK ON THE MATTER.

I PRESUME a good many of your subscribers, like myself, are wondering what to do with their honey. Are there any responsible parties in our large cities that will buy our surplus? or must we depend on selling at home for what we can get? Last winter was so favorable for bringing bees through alive and in good condition, that there probably are now more bees in the country than ever before. Then again, last year's crop is not, perhaps, all sold. I see no one advertising for honey; extracted honey was not quoted last winter in our Chicago paper, and comb honey was quoted, "Dull at 11 and 12 cents, sales only in a peddling way." Now the use of comb foundation has increased the production of honey, and California is coming in with a crop which will find a place in the market. Honey was low without her as a competitor last year. What can we get this year? What ought we to ask? It seems to me we must put the price very low to find a sale for the large amount we shall have on hand this year. Still, honey has not come in rapidly; I mean into my hives or my neighbors', this season. Bees here did not work on white clover until late, and basswood blossomed very poorly. It took my strongest swarm a little more than a week to fill up and cap over.

Now, please tell me what to do with my honey, if you do leave the rest of this letter out, aud oblige

J. B. COLTON.

Waverly, Brenner Co., Iowa, July 20, 1878.

I fear my advice in the matter may not be very agreeable to our honey producers, but for all that, I feel it a duty to say that our honey must, so far as I can see, be sold very low. It used to be said that comb honey should be sold for the same as good butter. Butter is from 10 to 12 cts. in our town, but nice honey, in small sections, sells from 18 to 20 cts. retail. In old fashioned boxes, it would probably not bring over 15c. If it should go down 3c. lower yet, I do not think we need be much surprised, or complain. Some of us will probably retire from the business, and go into something else; others will perhaps wear poorer clothes, and buy less largely of things we can make at home, but for all that I do not think we need be any less happy; it may be we shall all be happier. Contentment does not always come with money easily earned. As a general rule, I would sell my honey near home. If it will not sell in the stores and groceries, carry it around among those who know you. If you are acquainted with some good man in some of the larger cities, send, or better still, carry it to him, and let him sell it for you, or sell it outright, as you can do to best advantage.

In regard to prices; our commission men, Stair & Co., of Cleveland, sold our first honey at about 22c.; but since then there has been such a flood of the small sections in the market, that it has gone down as low as 16c., and we have concluded to keep the rest of ours for possibly a better price. We are retailing at 20c., and should not care to close out our whole crop, for less than 18c., net. If nicely packed in the shipping cases, it can be kept safely a year, if need be. I would keep it in a frost proof, dry room, if possible. Wherever you have it left for sale, have it clean and neat, and make it your especial business to see that it is kept so at all times. Honey should, at all times, attract customers by its looks, and not repel them.

Humbugs & Swindles.

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

THE patent bee hive men seem to have pretty much left the field, if we except Mitchell, and letters of inquiry in regard to him and his business are much less in number than during former months. Those who have read his advertisements in regard to queen rearing on Kelley's Island, may be interested in the following. He has advertised for several months that he was already located there.

Mr. Mitchell was here several weeks ago and saw my bees, which he pronounced very fine. I told him there were none on the island except mine and two or three swarms in the woods, which had escaped from me. Then he was anxious to secure a place to bring his queens to be fertilized. A place was got which pleased him very much. The next I learned of him was that he was taking queens from Sandusky to Johnson's Island in Sandusky Bay. That island is about a half mile from the peninsula on which, in many places are black bees in abundance. I have been told that he is opposed to bringing queens here, because there are wild bees in the woods. CHAS. CARPENTER.
Kelley's Island, O., July 20th, 1878.

Friend Root: I had a call from one of N. C. Mitchell's victims. He wanted to know if Mitchell was a swindler. He said he sent Mitchell $14.00 for queens, and $6.00 for an extractor, and has never heard from him since. I showed him several letters about Mitchell in GLEANINGS. He said he would write to you. J. R. ANDERSON.
Washington, Ky., July 19, 1878.

Would you be so kind as to let us know in August No. of the GLEANINGS, whether Mitchell of Sandusky has a patent upon the division board. We have received pamphlets from him, and he threatens vengeance upon all who use them. If he has none on the division board, upon what has he a patent? Please explain fully. Can we use the Simplicity hive with division board with impunity?
MANY BEE-KEEPERS.
Rogersville, Ohio, July 22nd, 1878.

July No., page 231, answers all your questions. Pay no attention whatever to his foolish threats.

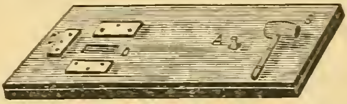
MAKING SECTION BOXES, AND PUTTING THEM TOGETHER.

SOMEBODY said in the Growlery, or at least somebody ought to have said, that our sections were so loose they would sometimes almost fall apart. Well, the mischief, when hunted up, seemed to be that the gang of grooving saws had a way of getting slightly loose in their bearings; and owing to the great amount of work they had to do, it seemed almost impossible to keep them perfectly true and close. The mandrel they were run on was one of Disston's make, with the bearings in the middle, the saws on one end, and the driving pulley on the other. Well, to get over the trouble, we made a steel mandrel, with both the saws and the driving pully between the bearings; that is, the bearings were both at the extreme ends of the mandrel, and the saws and pulley in the center. The mandrel is about 20 inches long. The result is quite satisfactory: our sections now go together so tight that they have to be driven slightly, and they are always just alike. The girls were in the habit of driving them with a light hammer, but our engineer, who is also something of a genius, amused himself while caring for the engine, by turning some very pretty little mallets for the purpose. These are much better because they do not mar the pine, and their faces are broad enough to close the whole piece down at one blow. Well, they were soon putting up sections that were strong, and doing it rapidly, too, but I had just begun to observe that it took too much time to lay down the mallet and pick up the knife, when the following letter came to hand:

SUGGESTION.

To bro. Lunderer's "lap-board" for putting together sections (June No., page 170), I suggest the addition of a false bottom, to play up and down between the two stops. Fasten one end with a hinge, and let the other project beyond the board, so as to be easily grasped by the left hand, and thus raise out the box without the pocket knife. This has the advantage over the knife, in the fact of its being always ready and in place. R. G. WARNER.
Columbus, O., June 26, 1878.

I at once sent our friend $5.00 for his idea, and now we have a board made thus:



The board is the same as the one in June No., except that it has a block, C, as well as the two side ones, and these 3 blocks are all screwed down so securely, that we drive against C without any danger of driving it off. The box is put together as usual, except that the mallet is used to drive against C, as well as down toward the lap board. When the box is done, a slight tap on the button, A, throws up the little square block, B, in the centre, and the box hops out of its place quicker than you could say "scat!" Of course, A is part of a strong lever on the underside, pivoted somewhere between A and D. To make it spring back in place, an elastic tape is tacked across the underside near A. We use a Simplicity cover for the lap board, as you will see. To work rapidly, you should keep the little mallet in your hand all the time.

Notes and Queries.

GOOD morning, bro. Root: I will come in without knocking; have been there so often of late and have become so well acquainted, that it is of no use to knock. I come with more subscribers. I will tell you a little of my business. I have a portable sawmill and moved into this part of the country last winter, with two stands of bees in the American hive. I made myself 12 Langstroth or Simplicity hives, transferred my two stocks, and found two more in the woods, which I served in the same way. I have them all Italianized, and have nine good strong colonies. The neighbors, noticing my success, have gone wild after bees; that is the reason that I come to see you so often. I have a job at transferring every few days. JAS. PARSHALL.
Union Valley, Mo., July 9, 1878.

[That is just what I want you to do, my friend, come right along and take the "rocking chair," whether you bring subscribers or not. You are all of you always welcome, and I wish you to feel perfectly at home. Now for the questions; but do not all speak at once.]

I am 12 years old, and am trying to learn bee keeping. My father has 21 hives of bees and I have 7.
King's Creek, O., June 21, 1878. A. L. MORGAN.

We had a swarm of Italians which we hived, and they came out again at 1 o'clock, and started for tall timber. The boys followed them one mile, run them into a tree, cut it, and brought them back, and I clipped the queen. BYRON RIGGS.
Fairbanks, Sullivan Co., Ind., June 22, 1878.

I had a swarm of bees one week ago to-day. and to-day they (the new swarm) threw off another swarm. How is that for the "frozen zone"?
J. M. CHEATAAM.
Six Oaks, Minn., June 23d, '78.

I am not in very good trim for writing to-night, as I went up a black oak tree after a swarm of bees, and got one eye closed; but want to ask you a few questions. Our bees in this section were ready to swarm in May; but, owing to the cold rainy weather, they did not swarm, but killed off the drones, and most of them have been very cross. The last of June and the first of this month they began to swarm and to "light out;" could not do anything with them. One man lost seven out of nine swarms. The second swarms act better. A good many of the swarms that left were found hanging on bushes. What was the cause of their killing off the drones? [Scarcity of honey.] What made them so cross and act so about swarming. [Same reason, and swarming mania.] FRANK POLLEYS.
Melrose, Wis., July 10, 1878.

VENTILATION.

One of my last young colonies, I put into a new hive made after the diagram in the journal you sent me. It being made good and tight, the bees left it next day and settled again. I bored holes in the back end of the lid, which let off the strong, hot, pine smell that was in the hive, which I am satisfied I could not have lived in myself. After doing that, my bees went to work, and I think are doing their very best. J. T. COOPER.
Viola, Mercer Co., Ill., July 13, 1878.

[Do not bore holes in your hives, my friend, but just shove the hive forward on the bottom board, and you can get all the ventilation ever needed. New swarms should have a very large entrance.]

I have tried the smoker, and it sent the bees down into the lower part of the hive a "howling," as the boy said; but we got it very hot and melted the solder, and we came near never getting it open again. It has not bothered any, however, only the first time. O, it is so much better than the mouth smoker; it has paid for itself in the last two days, we have kept it hot most of the time. JEREMIAH WOOD.
Lebanon, Ohio, July 5th. 1878.

[We have lately commenced soldering the joints, just to have them stand the banging in the mail bags better.]

We are having the finest honey harvest I ever saw. Our plains are covered with sumach, and bees have filled their hives completely full during the last week, and are now in boxes. Give them fdn., and they will extend it and have it filled with honey in 48 hours. CHARLES POOL.
Carthage, Mo., July 9th, 1878.

HOW TO TRANSFER.

The hive that you sent came in due time, all straight as a string. Thanks for your promptness. I think you would have laughed if you had seen the preparations that I made for transferring. I got all the tools that I could think of, saw, hammer, chisel, and 4 pans of smoke to keep robbers away, and as I had no honey knife, I used an old cavalry sword. Well, I got the hive open, and those bees just took one look at the array of tools that I held against them, and gave up in despair. There was not a cross bee in the whole lot. I got them all neatly fixed in the movable frames, and to-day they are at work as lively as ever. W. P. HALL.
Pembroke, N. Y., June 23, 1878.

QUESTIONS AND TROUBLES FROM THE NORTH POLE.

Do drones go into other than their own hives? [Yes, frequently.] I had a large swarm one day, and the next morning early they killed off their drones. [Their queen had become fertilized, and they had no further need of drones.] I have had four cases where swarms lit on other hives, to my great vexation. [Fix bushes for them to cluster on. and cover the hives they try to light on with a sheet.] I had a large second swarm come out the 3d day after hiving, and go into a hive near by that had swarmed the day before, and all were peaceful, only the intruding mother bee was soon killed and brought out, but I saw no funeral procession; only three bees brought her out and dumped her down without a bit of ceremony. [That is "bee style."] The earliest swarm I ever had, before this year, was June 22d. My first swarm this season was April 20th, and thereafter I had swarms every few days all along. Italians were ahead by three weeks; and chaff protected hives out of doors were the same. I did not lose any bees last winter, either in the cellar or out of doors. I like chaff 1 ft. all around and over the hive, and out door wintering best, especially if you will insure winters like the last. I would rather have natural swarms than make them. Hiving them is better fun than a dozen circuses. Oh, I forgot to say my cellar bees all killed off their drones a few days after the killing frost, May 13th. The first 6 swarms were from out door hives. Cellar bees are lively and swarming now. [I agree with you about the circuses.] J. E. BREED.
Waupaca, Wisconsin.

I would like to see the following questions discussed in GLEANINGS:

1. What is the best way to get queens fertilized when raised in great numbers? [The 3 frame nucleus.]
2. What is the best way to keep fertilized queens on hand? [Same as above.]
3. What is the best time and way to Italianize an apiary without loss of brood and honey. [In August. See A B C.]

Give us your way, and induce other bee-keepers to do the same. CHAS. W. GROTE.
Mauston, Juneau Co., Wis., July 22, 1878.

I wrote you May, 1876, that I was going into the bee business, and would follow the teachings of GLEANINGS. I have done so with the following results: I bought 4 weak swarms May 1st, 1876; I have now 55 strong swarms, and expect 10 or 12 more. I have had a fair yield of honey each year. My success is all due to your teachings. W. H. JEMISON.
Adams, July 1st, 1878.

Sections are very valuable just now. I did not think I would need over 500, but I could have sold quite a lot. Everybody that has a few bees asks, "Have you any more of those patent honey boxes than you want? I would like to get some." They all seem to think they are patented, because they are so much nicer than the old glass boxes.
W. H. FREDERICK, Maximo, O., June 29, 1878.

[It has been much the same here. Steady old farmers have been calling for sections and fdn. all day long, and even into the night in some cases.]

The stand I reported 2 swarms from in April gave me 2 more in May. All are doing well. Those having a cross of black blood are doing much the best. I purchased 10 queens of H. Alley last year; not one of them are extra layers. They are small, but the brightest queens that I have ever had.
Milton, Ill., June 20, 1878. A. L. FOREMAN.

[As almost everybody insists on having yellow queens, I presume friend A. was trying to please them.]

In acknowledging the receipt of the queen I purchased of you, last month, I said that I had transferred her to friend Claxton, and that he showed some disappointment because she was not so large as the one you sent to him. I saw her this morning, and must say that she looks very different from what she did when received, and should say that in looks she is very good. What her progeny will be I can't tell yet. I think I owe this explanation to you.
WM. SHINTON, Patterson, N. J., July 7, 1878.

[Queens rarely show to the best advantage, until they have been a week or more in a *strong* colony.]

HONEY DEW. This, as its name implies, is a dew that falls during the night, and is sweet like honey; or, at least, a great many claim that it falls like dew in the night, and many have been the learned theories embodied in lengthy papers, to endeavor to account for such a very queer way of doing things, on the part of old dame Nature. It may be that sweet dew does fall from the atmosphere without the agency of aphides, or of any other kind of winged insect, but I, for one, am very much averse to accepting any such theory. Some writers explain it by saying that the leaves of some trees, and possibly the blades of grass, at certain times and seasons when the conditions are all right, distill the sweet matter from their foliage and blades. I like this explanation much better than the former, but, inasmuch as all cases that have come under my observation could be explained by the agency of the aphides (see APHIDES), I am much inclined to give them the credit of the whole of this kind of honey. When the dew is found on the grass, in situations where no trees or bushes are near, which, it is said, is sometimes the case, I would suggest that it is exuded by some sort of an insect that, after feeding on green foliage, etc., takes a flight in swarms like mosquitos, and ejects the sweet fluid in a sort of spray. It may be hard to prove this, but, nevertheless, I think the idea much more tenable than that the honey or sacharine matter evaporates from the flowers, and then falls like dew. Some of the advocates of the latter theory urge that, in boiling the maple sap, a part of the sugar at least is evaporated, for it is plainly discernible by the smell in the air.

My friends, you smell the volatile essential oil that gives the maple sugar its agreeable odor, and not the sugar itself floating in the air. You can smell burnt sugar also, it is true; but the volatile part in either case is not sugar; for no skill of the chemist will enable him to condense it from the invisible vapor into sugar once more. When it is possible to volatilize sugar by heat, and then condense it again, I shall believe in a honey dew distilled from the atmosphere, like the dews of the night. If this were possible we should see our sugar slowly passing away, while exposed to the air, precisely as does the moisture it contains. Experiment shows that sugar may be wet and dried innumerable times, but that, while the water passes off very soon, the full weight of the sugar is invariably left behind.

In support of the exudation theory, I will say that I have many times found a liquid hanging on the leaves of the basswood and some other trees, in the form of a lather, like soapsuds; but, although this had a mucilaginous property, I could discover nothing sweet about it. Should nature change the starch it contained into sugar, a very simple and oft occurring change, we should have honey dew distilling right from the leaves of the trees; and I have been informed that such has been known to be the case—the leaves of the basswood trees of the forests have been found dripping with honey. This was during the great honey yield in Minnesota, a few years ago.

In support of the theory that it falls from the air or clouds, it is said that, in the old world, there is a substance called manna (I presume in commemoration of the manna of the Bible), which falls from the air during certain seasons of the year, and that it is gathered and used as food. It has been suggested that this manna is the pollen of a certain kind of tree, which, being light, is carried quite a distance by the wind. Pollen consists principally of starch; and a little dampness, such as the dews of night furnish, will frequently convert this starch into sugar in a very few hours. It is possible, that some kinds of honey dew are the results of the decomposition of pollen, which may become scattered over the grass and herbage.

In conclusion, I would ask those who come across this wonderful substance, or find the bees working on it, to make careful experiments and examinations. Do not jump hastily at conclusions, but go clear to the top and bottom of things. Many have declared there were no aphides on the trees at all, and one man who had so decided, afterward concluded to climb the tree, and, in its very topmost branches, he found the leaves all alive with a sort of green insect, which was spraying the air with the dew in a manner that made it look like a veritable shower, as the sunlight illumined the scene. Look carefully, and then write me your discoveries.

HYBRIDS. Every body who has had Italians very long, probably knows what hybrids are, especially, if they have kept bees when the honey crop was suddenly cut short during a drouth in the fall of the year. The term hybrid has been applied to bees that are a cross between the Italians and the common bee. If one buys an Italian queen that is pure, he can at once set about rearing queens if he chooses, and it matters not how many common bees there are around him; if he rears all his queens as I have directed under ARTIFICIAL SWARMING and QUEEN REARING, he may have the full benefit of the Italians so far as honey gathering is concerned, just as well as if there were no other bees within miles of him. This seems a paradox to most beginners, for we have letters almost daily, asking if it will be of any use to purchase Italians, when other bees are kept all around them. If you are keeping bees for the honey they produce, and for nothing else, I do not know but that you are better off, with other bees in the neighborhood. The queens that you rear will be full bloods like their mother, but after meeting the common drones, their worker progeny will of course be half common and half Italian, generally speaking These are what we call hybrid bees. In looks, they are much like the Italians, only a little darker. Sometimes a queen will produce bees all about alike ; that is, they will have one or two of the yellow bands, the first and broadest being about as plain and distinct as in the full bloods. Other queens will produce bees variously striped, from a pure black bee, to the finest three banded Italians. I have had black queens fertilized by Italian drones, and these seem to be hybrids just the same as the others: I have not been able to distinguish any particular difference.

As honey gatherers, these bees that have the blood of the two races are, I believe, taking all things into consideration, fully equal to the full blood Italians. There are times, it is true, when the full bloods seem to be ahead; but I think there are other times and circumstances when the taint of black blood gives an advantage in respect to the amount of honey gathered, that will fully make up the difference: and I would therefore say, if honey is your object and nothing else, you are just as well off to let your queens meet just such drones as they happen to find. Why then do hybrid queens find slow sale, at about one-fourth of the price of pure Italians? Just because of their excitability and vindictive temper.

Italians, as they generally run, are disposed to be quiet and still when their hive is opened, and to remain quietly on their combs while they are being handled, showing neither vindictiveness nor alarm. Black or common bees, on the contrary, are disposed to be frightened, and either make a general stampede, or buzz about ones head and eyes in a way quite unlike the Italians. The Italians do not stand still because they are afraid to make an attack, for, let a robber approach, and they will sting him to death in a way so cool as to astonish one who has seen only common bees under similar circumstances. A race of bees so prompt to repel intruders of their own kind, it would seem, would also be prompt to repel interference from man; but such is not the case. They do not seem to be at all suspicious when their hive is opened, and a frame lifted out. Well, these half bloods inherit the boldness of the Italians, and, at the same time, the vindictiveness of the blacks. And to raise the cover to a hive of hybrids without smoke, during a scarcity of honey, would be a bold operation for even a veteran. Without any buzz or note of alarm, one of these sons of war will quietly dart forth and inflict his sting before you hardly know where it comes from; then another, and another, until, almost crazed with pain, you drop the cover, and find that they are bound to stick to you, not only out into the street, but into the house, or wherever you may go, in a way very unlike either pure race of bees. Sometimes, when a hive is opened, they will fix on the leg of one's trowsers so quietly that you hardly dream they are there, until you see them stinging with a vehemence that indicates a willingness to throw away a score of lives if they had so many. This bad temper and stinging is not all; if you should desire to introduce a queen or queen cell to these bees, they would be very likely to destroy all you could bring; while a stock of either pure race would accept them without trouble. During extracting time, or taking off surplus honey, you will find little trouble, providing you work while honey is still coming; but woe betide you, if you leave it on the hives until the yield is passed.

In preparing hybrid stocks for wintering, I have seen them so cross that it was almost impossible to get in sight of the hive, after they had once got roused up, and when I charged on them suddenly with smoker in excellent trim, they charged on me as suddenly, took possession of the smoker, buzzed down into the tube in their frantic madness, and made me glad to beat a retreat, leaving them in full possession not only of the "field," but the "artillery" as well. This was a very powerful colony, and they had been unusually roused up. Although it was quite cool weather, they hung on the outside of the hive, watching for me, I suppose, until next morning. I then came up behind them with a great volley of smoke, and got them under and kept them so, until I could give them chaff cushions, and put them in proper wintering trim. The queen was extremely prolific, and I do not know that I ever had one single queen that was the mother of a larger family of bees. Many of these hybrid queens are extraordinarily prolific.

I believe the hybrids are more disposed to rob than the Italians, but not as much so as the common bees. I decide thus, because, when at work among them, the bees that buzz about the hives, trying to grab a load of plunder if a chance offers, are almost invariably full blood blacks. They may have a dash of hybrid blood, but I judge not, because the hybrids and Italians will often be at work, when the blacks are lounging about trying to rob, or doing nothing. I have known a strong hybrid stock to be slowly accumulating stores in the fall, when full bloods, in the same apiary, were losing day by day.

I.

ITALIANIZING. Few questions are asked oftener than, "How shall I Italianize? and when shall I do it?" There is always a loss in removing a queen and substituting another, even where we have laying queens on hand; and where we are to use the same colony for rearing a queen there is a still greater loss. Under the head of ARTIFICIAL SWARMING and QUEEN REARING, these points are fully discussed. Where one has an apiary of black bees, his cheapest way, especially if he has plenty of time to devote to the subject, is to purchase a choice tested queen, and rear his own queens from her. If he has as many as a dozen colonies, and proposes to continue to increase the number, it may be his best and surest way, to purchase an imported queen. If the choice queen is purchased in the spring or summer months, I would not remove the old queens, until the summer crop of honey is over; but, instead of allowing natural swarming, take two or three frames from each old stock about swarming time, and make nuclei, giving them queen cells from the Italian brood. When these queens are hatched and laying, build the nuclei up, with frames of brood given one at a time, until they are full stocks. By such a course, you have the full benefit of your old queens during the honey season, until the new ones are ready to take their place. After the honey yield has begun to cease, you can remove the old queens, and give the now small colonies, queen cells as you did the nuclei at first. This does the swarming for the season, and the Italianizing, at one and the same time.

If you have more money than time to spare, and wish to have the work done up quickly, purchase as many queens as you have colonies, and introduce them at any season of the year, as directed in INTRODUCING QUEENS. You can purchase all tested queens if you wish, but I would advise taking the dollar queens, while there is any great difference in price.

After your stocks have all been provided with Italian queens, by either of the plans given above, if you wish your bees to be pure Italians, you are to commence replacing all queens that prove to be hybrids, as soon as the young bees are hatched in sufficient numbers to enable you to decide. See ITALIAN BEES. Now, if honey only is your object, I would not replace these hybrids, until they are one or two years old; for they will average just as well as honey gatherers, and will raise just as pure drones, as the full blood Italians. If you should find the bees of any particular queen too cross to be endurable, replace her with another, at any time. Be careful, however, that these hybrid colonies are not allowed to swarm naturally, for, if they raise a queen, she will produce hybrid drones; and this is something we wish scrupulously to guard against. It will be better to raise all the queens yourself, and practice artificial swarming exclusively, while you are seeking to Italianize, especially, if you are surrounded with common bees. If you practice in the manner given above, you can reap the full benefit of the Italian blood, even though there are hundreds of stocks of the common bees, within the range of your apiary. But, if you are going to raise queens for the market, you should buy up or Italianize all the common bees within two or three miles of you, in every direction. The more faithfully you do this, the better satisfaction will you give your customers. Your neighbors will very soon be converted to the Italians, if you keep right along and let crops of honey, rather than talk, decide the matter, and then they will be quite willing to pay you for introducing Italian queens into their colonies. Be sure you do not quarrel, and foster any bad spirit in the matter, but let them have their own way, even if it, at times, is aggravating; and, in a very few years, you will succeed in having your whole neighborhood Italianized.

K.

KING BIRDS. Quite a number of the feathered tribes have a fashion of eating bees; even our common fowls sometimes get into the habit of gobbling them with as little fear of consequences, as if they were the most harmless insect in the world. It is quite likely that birds have a way of crushing their prey with their bills so as to prevent the possibility of the bee's using its sting. It has been suggested that the birds and fowls eat only the drones; but several examinations of their crops showed that it is, without question, the workers, and it is quite probable that the honey contained in the honey sack is the principal inducement.

Mr. T. L. Waite, of Berea, O., furnishes some very positive evidence, and also mentions a habit of the King bird, I think is not generally known to naturalists. During the month of June, '72, a flock of seven of these birds were making such regular and constant visits to his apiary that his suspicions were aroused, and concealing himself, with watch in hand, he observed a single bird snap up 5 to 8 per minute. After having pursued this "innocent" amusement for a sufficient interval, his birdship was in the habit of taking a rest on a neighboring tree, where, after a short meditation, he commenced a series of muscular contortions of the head and neck, that finally resulted in his opening his mouth wide, and "heaving up" a wad of some strange black looking substance. By chance their perch was close over a bed of rhubarb or pie plant, and our friend secured a number of these wads as they fell, and thus settled the point of their being nothing more nor less than crushed bees. After they had "squeezed" out all the honey, probably having no further use for the "pomace", it was unceremoniously cast aside, while his worship, with a keen appetite and zest for the sport, went "bee hunting" again. They came regularly for a "meal" two or three times a day. I guess we had better use our rifles and shot guns in such a way as to induce them to learn that apiaries are "unhealthy" localities for such boarders.

L.

LOCUST. This tree is so well known as to scarcely need a description. It grows very rapidly, and bears blossoms at a very early age, and could we be assured of having regularly the crop of honey that the locust bears perhaps one year in five, I should at once plant a locust grove exclusively for honey. It blossoms profusely, almost every season, but often, the bees pay no attention to the flowers at all.

The honey comes at a time, when it is very much needed, as it is a little later than the fruit bloom, and a little earlier than white clover. If anything could be done, by a selection of different varieties, or by cultivation, to make it bear honey every season, a locust grove would be a very valuable addition to the honey farm.

The leaf of the locust much resembles the leaf of the clover, only it has a great number of leaves on a stem instead of only three; the blossom is much like that of the common pea, both in appearance and size. It is an interesting fact, that the locust, pea, and clover all belong to the same order, *Leguminosæ*.

M.

MOVING BEES. Perhaps about as many mishaps, especially with beginners, have come about from moving bees unwisely, as from any other one cause. A little thought in regard to the habits and ways of bees would save much of this. Bees fly from their hives in quest of stores, perhaps a mile; sometimes a mile and a half or two miles; but they will seldom go beyond these limits, unless at a time of great scarcity of pasturage. Well, after a bee has once fixed his locality, he starts out in the morning on a run, and never stops to take the points, as he does the first time he sallies out from a new locality. The consequence is, if you have moved his hive, either in the night or day time, and have not moved it more than a mile, he will, when he goes back, strike directly for his old locality. On reaching there and finding his hive gone, he is lost and helpless; and even though the hive may be but a few rods away, he will never find it in the world. New hands frequently move their hives close together at the approach of winter, that they may better protect them with chaff or straw. I do not know how many times mishaps resulting from this kind of proceeding have been related to me. All goes very well, perhaps, until we have a warm day; then the bees start out for a fly, and very naturally return to their home just as they have been doing all summer; if no one is near to restore their hive to its former location, they fly helplessly around for a while, and then alight on the trees and fences, scattered about, and finally perish. If other hives are near, they will get into the wrong hives and get stung; or, if their numbers are great enough, they will sting the queen because she is a stranger to them. Sometimes the bees of the whole apiary will become so mixed up, that they have a general melee and fight, resulting in great damage, if not in the destruction, of many of the swarms. Moving hives short distances during the working season is almost always done with loss of more or less bees, and consequently honey.

It is true, bees may sometimes be moved without loss, for there is quite a difference in the disposition of colonies, and where one may be moved all about the yard without any apparent loss, the next may suffer, if moved only a few feet. I once purchased a very strong colony of blacks of a neighbor, and to be on the safe side, moved them on a cold day in Dec. I should think it was a week afterward, when it became warm, and the bees went back to their old home in such numbers, that the first cold night froze out the remaining ones, and I lost my stock entirely. At another time, a neighbor wished me to take a swarm from a very strong stock of blacks. As I had but little time, I set another hive in its place, containing a frame of brood and a queen cell, and moved the old one several rods away. He told me next day that the bees had all found their old home, and deserted the brood comb entirely. I directed him to move it again, and place it the other side of the orchard, but it seems these wily blacks had learned the trick, for they all found it even there. Italians, as a general thing, are more ready to take up with a new location than the blacks, and stick more tenaciously to their home and brood.

Sometimes, shaking the bees all in front of the hive, and letting them run in like a natural swarm, will answer to make them stick to their new locality; at other times, moving the hive away for an hour or two, until they get really frightened at the loss of their home, will have the same effect, after it is once brought back to them. In this case, they seem so glad to get their dear old home again, that they will adhere to it wherever it is placed. Neither of these plans can be relied on implicitly, and I really do not know of any that can. Sometimes we succeed by leaving a comb for the returning bees to cluster on, and then take them to the new stand just at night fall. When allowed to run in, they exhibit their joy by loud notes of approval, but, just as likely as not, they will be back at the old spot the next day, just the same. With patience, we can by this means save most of them. As a natural swarm will stay wherever they are put, anything that reduces a colony to the condition of a natural swarm will accomplish our object. Bees depend very much on the surrounding objects, in taking their points; and I have known a whole apiary to be successfully moved a short distance, by moving all the hives, and preserving their respective positions with reference to each other. Carrying bees into the cellar for several days or a week will usually wean them from their location, so that they may then be located anywhere, but this plan is objectionable, insomuch as the colony is prevented for that length of time, from doing any work in the field, and this is quite an item in the height of the season. Where we wish to divide a swarm, the matter is very easy, for we can carry our stock where we wish, and start a nucleus of the returning bees. The usual way, and by far the easiest where it can be done, is to wait until winter, and move them after they have been confined to the hive for several weeks by cold weather. Bees moved in the spring seldom go back to their old quarters, for they generally take their location when they take their first flight, whether they have been moved or not.

Where the new location is a mile or more distant, they can be moved any time, and I have known them to be moved only a half a mile, without any noticeable number going back to their old locality. If bees are to be moved during hot weather, great care should be used that they be not smothered and their combs melted down by the intense heat that is generated where they have an insufficient quantity of air. After many mishaps in shipping bees in the summer time, we have now decided on covering both the top and bottom of the Simplicity hive with wire cloth. When thus prepared, we have never had any trouble, even when shipping them during our hottest July and Aug. weather. When we depended on wire cloth over the top only, or over the portico of the old style L. hives, we have invariably heard that the combs were melted down, and that the honey was running out at the sides of the hive. Allow a draft of air right through the hive, and the bees will take care of themselves, and the combs filled with honey. As the chaff hive will not admit of this arrangement, I would recommend that the bees be taken out, in very hot weather, and shipped in the Simplicity hive; that is, just the body, without any top or bottom. If you are purchasing bees in a common box hive, you can turn the hive over, and tack wire cloth over the bottom; but if the colony is a powerful one, and the weather hot, I would much rather have a wire cloth covered opening in the top, as well as bottom. The hives, when thus prepared, may be carried in a spring wagon or buggy, or even in a lumber wagon, if you drive slowly. Where it can be done, I would spread straw under the hives and pack it around the sides; this will prevent jolting.

Of course every comb is to be made perfectly secure, where the bees are to be shipped by rail, or entrusted to any who may not give them careful handling. We fasten the metal cornered frames, by sticks placed at each end of the frame. These sticks are 10 inches long, by about 7-16 inch by ⅞. For a 10 frame hive, you will need 22 sticks. Put the first two against the side of the hive tight up in the corners, then a frame of comb, and another pair of sticks. When all the combs are in, the last two sticks are to be made a little wedge shaped at their lower ends, and pushed down hard between the comb and the side of the hive. The frames should be so tightly wedged, that the whole may be tipped about in any direction. You are now ready to tack on the wire cloth. We use a cheap, painted wire cloth. If the cover, bottom board, quilt, enameled sheet, etc., are to go with the bees, I would attach them to the bottom with strips of lath, leaving a space of an inch for the air to circulate between the lower wire cloth and the attachments. If the upper story is to be sent with the hive, I would make a separate package.

It is quite important that none but old and tough combs be used, when shipping bees by rail. The beautiful new combs built on the foundation would be very nice to send out to customers, but they would be almost sure to break down. Bees *can* be sent by freight, and I have sent them safely in that way, as far as Massachusetts; but, as a general thing, I think I would risk them only by express.

Where bees are to be moved in a wagon or buggy, and the colony is an old one with the combs all bridged over from one to another, I would not go to the trouble of putting the sticks in, for I have always found them to move safely without, even if they are in metal cornered frames. Have them well ventilated and handled carefully, of course.

If bees are to be sent long distances, be sure they have a good supply of stores, for the excitement attendant on the confinement and jolting about will sometimes cause them to consume honey enormously. On this account I would be very careful about moving bees needlessly. Carrying bees into cellars and out again many times during the winter, I should object to, just on this account; especially, if we can winter them just as well without so doing. Fix a permanent stand for your bees, give them a good chaff hive, and they, as well as yourself, will be spared much annoyance, if they can be allowed to remain there year after year.

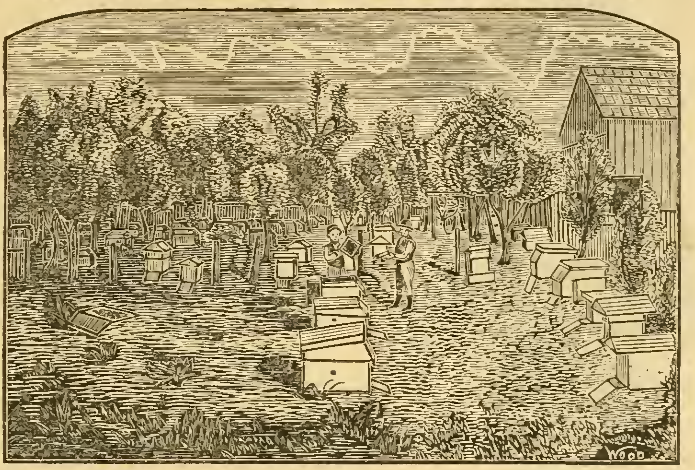
If you wish to move bees during the day time, while many are in the fields, you can get them nearly all in, by smoking them at intervals for about a half hour. This will give those that are out time to come in, and the smoking will prevent any more going out. If the colony is a very strong one, leave a hive with a comb of brood on the old stand, and the owner can start a nucleus very conveniently with the returning bees.

It is quite desirable that the express agents should handle bees carefully, and the sight of them buzzing about just under the wire cloth is, usually, a guarantee of safe handling; but, as many do not know how to handle and take care of bees, we have of late had a large printed card tacked to all the hives and nuclei sent out. Since doing this, we have never had any complaints of damage in transit. The card reads as follows:

KILLED!

This hive contains Live Bees, and they will be "killed" if roughly handled, or left in the sun, or not kept this side up. Will you please be careful of the little fellows? A. I. ROOT, Medina, O.

As soon as you receive bees, place them at once where they are to stand permanently, and let them out as quickly as possible. They will buzz about, and make quite a stir for a while, but all will get back to their hive safely; for their buzzing about is just to mark their new locality, as we described in BEE-HUNTING. Set the hive level, and I would have it square and true with the points of the compass. Set it on the bottom board, loosen the wire cloth where the entrance is to be, and then let them remain, until they get acquainted with the surroundings a little. Next day, if you choose, you can take off the wire cloth, and remove the sticks, using smoke, of course, to keep them out of the way. When this is done, put on the enameled sheet and cover, and adjust the hive on the bottom board so that the bees can get out and in comfortably, but do not make the entrance larger, unless the weather is extremely warm. Your next work is to learn to handle the frames, and to get acquainted with the bees. If you should take the frames out and look at the queen, and see how they get along with brood rearing, etc., every day, I should be much more sanguine of their prosperity, than if you only looked at them once a week. After they are accustomed to your daily and *careful* handling; you will find that you can get along without smoke, veil, or any thing of the kind.



PLUM GROVE APIARY, J. BUTLER & SON, WOODVILLE, MICH.

PLUM GROVE APIARY.

FRIEND ROOT: Thinking you would like to see how we look out this way, I send you a photo. of our bee yard for inspection. All those large hives you see are chaff packed. In size they are 22 inches in the clear. We use 10 frames, 12x13 inches. The packing on the two sides is 2½ inches thick, and on the rear end five inches. We use for packing clear wheat chaff, all sifted to remove all the straw. Oat chaff does not answer, as it gathers dampness. It also has a portico 5 inches deep and broad. For winter, we use a false front with 2 inch space. We also use on the frames a bag that will hold about a bushel of chaff; this we put on after the weather begins to get cold in the fall. First we put on a piece of old clean carpet, then the chaff, and finally put in the false front and they are in winter trim.

The cover is made of ⅞ inch lumber, matched and put together with white lead; then a batten is put over each joint, and they will shed any amount of rain, if kept painted. The surplus capacity of these hives is about 50 pounds, with one tier of sections.

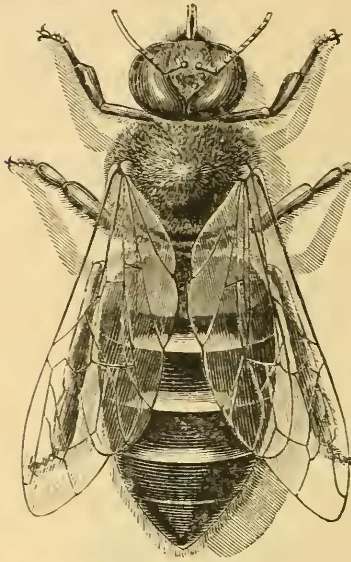
In the rear end we drop a 6 inch door hung with butts down, so we can raise up and remove the case holding the sections. After using these hives the second season we like them very much. We have in use 60 of them. The entrance is 14 inches long by ⅜ deep. In these the bees do not lay out near so much as in hives not packed. We shall make enough of them for our winter stock, but no more, as they are too costly. We are indebted to Novice more or less, for many of our improvements in the appearance of our apiary, such as keeping grass and weeds and all kinds of rubbish out of the apiary, besides other things too numerous to mention. We have been removing cases of 50 lbs. from those large hives. Our prospect for surplus very good to date, June 28th.
J. BUTLER.

Jackson, July 2d, 1878.

P. S.—The reason we call our apiary Plum Grove is because most of the trees are of that sort, and yield an annual harvest to a considerable amount. We have about 100 trees, but they are not all bearing yet.

Perhaps I should make some apology for the picture of friend Butler's PLUM GROVE APIARY, inasmuch as it is the first landscape our young engraver has ever attempted. His first work on the picture was the barn, which you see he has done pretty well. The hives I am afraid he hurried over a little too much. Also, by a mistake in copying the photo, he has turned it about; for the barn is really on the south side. As I once visited the place, the surroundings look quite familiar to me. Friend Butler is the personage who is holding up a frame, doubtless, looking for the queen through his spectacles. His stalwart son, who is larger than his father considerably, is holding a—well, I guess it is a Bingham smoker. He has wisely tucked his trousers in his boots, that he may not have to stop his work every little while, to stamp off bees, that, either by mistake or "malice afore thought," have got where they ought not to be. Friend Butler has his hives elevated rather more than we do, and then has a broad alighting board, as you see, to conduct the bees in doors. When I was there, a hive was kept on a platform scale, but I do not see it now; perhaps it is there, for all that. An excellent place, is friend Butler's to visit, and I should dearly love to spend a whole day there (especially, in plum time).

THE *A. B. J.* for June, charges me with having ungenerously misstated the amount, that Winder had received from Mr. Parker, and had refused to refund. As soon as the No. was received, I at once mailed friend Newman, Winder's letter in which he himself acknowledges the receipt of the $30. The letter was returned to me, with a most *humble* apology for having been so hasty in taking Winder's latter statement for granted. Of course, I looked for some retraction in the July No; as it contained none, I expostulated; the expostulation was received and answered, but not a word was said in regard to a public apology. When I am publicly charged with falsifying, I rather prefer a public, in place of a pri gate exoneration. Perhaps, this is one of the trials consequent upon showing up Humbugs and Swindles.



DRONE BEE.

At the time I wrote the article on drones, I did not give an engraving, because no drones were to be found. As they have been very plenty for a month or two back, I have had one engraved for the A B C book. What do you think of him? If any of you can make a pencil sketch of one, more accurate than this engraving and of about the same size, I will pay for your time and trouble. But remember, these sketches are to be taken from the drones themselves. I know there are some excellent artists among our readers, and if any of you are disposed to help in the work on the A B C, I am quite willing to pay you for it. It is an easier matter to get the engraving done, than it is to get an *accurate* drawing of these restless little friends of ours. The engravers are now at work on a queen, of about the same proportion as the above.

BELOW, I give you a copy of the recent ruling in regard to queens by mail:

* * * "When packages containing bees are found in the mail car, the employe in charge thereof should deposit the same at the terminal office of his run, and the postmaster thereat should notify the party addressed, by letter, that such package is held subject to his order, and that the same will be forwarded, at the expense of such party, by such means as he may indicate other than the mails.

JAMES H. MARR,
Act. 1st Ass't P. M. Gen'l."

We stopped sending them out about July 24th; but they have been coming in to us, by every mail, and the number now piled up that will have to die, I fear, before provision is made in regard to them, is enough to make a cheerful person look sober, and I am not naturally a cheerful person. In sending by express, we shall gain nothing by having our cages weigh less than 10 oz., as the charge will be 10c. anyway, and therefore we would better use larger cages. As the queens will be much better cared for, it may be that this ruling, which now seems so unreasonable and unjust, may be a blessing in disguise after all. Let us try and think so. The burden will fall heaviest, I fear, on those who live a great ways from the express offices. If queens are received dead, I will take your word for it; do not think of going to the expense of returning them by express. Please remember the 10c. to prepay express charges over the lines mentioned in our ad. I have lost so heavily on queens that I feel almost discouraged, and, I expect I feel a little bit cross, about the great number of burdens I have to bear, in the shape of money to make good losses.

One more thing: *please* do not accuse any body of dishonesty, when things do not look just right at the first glance. I do not doubt your word, and I do not believe there is a single one among our 3 or 4,000 readers, who would want me to send them another queen after they had received one all right; I have asked you to return the dead queens, that I might examine their cages, and find out, if possible, what made them die; not because I was afraid to trust you. Nor do I refuse to send you goods without pay because I am afraid to trust you, but because of the great expense of keeping accounts with so many people scattered all over our land. One friend said he did not believe an Imported queen which we sent him had ever been fertilized; do you think I whuld send you a queen of any kind until she had been laying? If I did, I should have more "troubles" yet, I fear.

A STORY WITH A MORAL.

A GREAT many troubles occur in business from imperfect addresses, or none at all. It has been most especially trying this season, with our great masses of correspondence, to waste our precious time, in hunting postal guides, writing to P. M's, and guessing at the hand writing. To illustrate: an old friend and customer, sent some time in May, for a lot of corners, but closed his letter, without a single mark in the shape of a name on it. On the envelope, we deciphered Columbus, Ind. We turned at once to our subscription list, and wrote to every name there, but our friend had allowed his subscription to expire, and none of them had sent for any corners, or could tell us who might have done so. Of course we could do nothing, but wait. In time came a letter, if I recollect aright, telling us we had better stop business, if we could not fill an order inside of a month, or even write a fellow a postal card to say what we were going to do. I at once recalled to mind our friend Coates when I saw his name at the bottom, and felt sorry that I should not have guessed it was he, before. To make sure of no more delays, I called the shipping clerk and told him to be sure that the corners went by the very first express. Some time afterward, word was brought me that a tracer had been sent for goods, which were lying at the man's express office uncalled for, and yet he kept writing that they had not come.

"Who is the man?"

"Coates."

"Is it possible that *Coates* has not yet got his corners?"

"He won't go to the office after them."

"Let me see the tracer."

It was brought.

"Why this is Columbus, *Ohio!*"

The order was next hunted up, where he told what his name was. When examined, it showed that when he sent his name, he had omitted the *state*, and the shipping clerk took it for granted it was the Capital of our own state; Columbus is such a household word to us. By the time he got his goods the honey season was pretty much over. The shipping clerk was to blame, it is true, for taking *anything* for granted in regard to addresses, but the principal blame attached to our friend for not putting name, state, and town on every letter he writes. People will not do this, I fear, even if we should talk until we are gray. In fact I am quite sure I should forget it myself once in a while, if I tried ever so hard. Well, what *shall* we do? Steady boys; this story has got a moral to it. What is the moral? Let everybody who does business, have their full name and address printed in some shape, on everything they send out by mail. Printing on envelopes is done very cheaply, but there is still a better way. It is often almost as important to have dates as to have addresses, and the new rubber dating stamps will fix it all nicely. Have one right by your writing materials, and stamp it on every thing you mail; yes, even your books and papers, models, seeds, samples, etc. We have a great big basket, for things that are sent us, and a great many times they lie around and are lost, waiting for something to identify them. Many of them, we never find out about at all. Why, it makes me really feel happy, when I catch sight of the purple ink used in these dating stamps, to indicate where things came from. I want to please you, and to get you your goods at the very *earliest minute* possible, and you cannot think how it would help us, to have your crooked, funny names and residences all printed out in plain English on your letters, or somewhere else.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, AUG. 1, 1878.

Better is a little with righteousness, than great revenues without right.—Proverbs, 16; 8.

◆

WHEN you let your queen out of the cage, in introducing, you should daub her wings with honey; then she can neither "squeal" nor fly away, as they are sometimes disposed to do.

◆

WHAT TO DO.

To those who are short of money and cannot sell their honey, queens, bees, etc. In the first place, get up early in the morning, and after you are up, don't sit on a log with your hands in your pockets, but work. Fix up your apiary so nice that every neighbor that comes along will want one like it, and then you can sell him a hive, or a queen, or possibly some honey. Stick up a neat "shingle," saying "*Bees and Honey for Sale*", and have your honey so nice and tempting when anybody calls that they can't help buying. Do not buy your sign, but paint it yourself, just to save the money. If you are in debt, stop out goes; put your money in your pocket and button it up. Keep putting in all you can get, but don't let any get out. Save just for the fun of it, whether it pays or not. Scrape up all your beeswax, on rainy days, but don't send it off by mail or express, and lose half in charges; if you cannot sell it near home, club with your neighbors and send a barrel of it by freight. If you cannot sell honey and bees for cash, trade for something you know you have *got* to buy. Wear old clothes, and be careful of them. Be careful of everything. Do not make mistakes and blunders, but get up early *every* morning, and make every single day count something, even if you are sick. Get up early Sunday morning, too, and give God the best day's work of the whole week, in laying up treasures that do not pass away.

◆

A SHORT CHAPTER ON ROBBING.

ABOUT 5 o'clock this morning, I heard a peculiar high note in the apiary. It was too cool for the bees to fly very much, and I therefore soon found where the sound came from, for it was the robbing key, without any question. A small colony of very pretty Italians were scampering out and in, as if for dear life, and by the way they wiped their mouths, as they came out, I judged, at once, that they were not being robbed. By looking a little closer I saw that the bees going out were light and small, while those coming in were plump and large. "Now, you young scamps, who are you robbing?" said I, as I scanned, one after another, the whole 214 hives in the yard. A way off in a remote corner was another uproar; at first I thought they were being robbed; but soon, I found that they were engaged precisely as were the first colony. The next thing was to line the thieves, and soon they were located in the direction of our engraver's hives. He had purchased and transferred a black swarm, the evening before, and the Italians were going in and out unquestioned, as merrily as could be, while the blacks stood about idly, as if it was no manner of concern to them, how quickly their hard earned stores were all appropriated. As it was a Simplicity hive, the mischief was stopped by simply shoving the hive back a trifle, for this closes the hive so effectually, that a whole avalanche of robbers could never force their way through, as they do so often where hives are closed with blocks or wedges. What shall we do to make such provokingly shiftless bees show a little spunk and take care of themselves? Well, I would open the hive about dusk, and see if their queen was all right; if not, give them one; if she was, I would give them a frame of Italians just hatching out; then I would be sure that in 3 or 4 days, at farthest, they would "hold the fort", without any farther trouble, whether there was a queen or not, providing they had some brood in the hive, or something worth fighting for.

QUEENS.

I tell you, my friends, the queen business is "business," most surely; especially where they are sent by mail. A great many of them are lost in reaching us; some are starved, some smothered, and a few die without any assignable cause. Then they must be introduced, and quite a number are lost in that way; more are lost again in reaching our customers, and as we guarantee safe arrival, all these have to be made good. Some are lost in introducing again, and, of late, we have had several reports of queens that did not lay, after their long journeys. Who is to bear the loss? I, or you? I am sure I hardly know; I do not like the idea of taking your money for a queen that is no manner of use to you, and yet if I am to take all these risks, I shall certainly have to have a larger profit, or I shall sink money continually. I enjoy the business, for it is a rare pleasure, I assure you, to hear of friends a thousand miles away rejoicing in their fine Italians, and great crops of honey, that came from a dollar queen, and that the expense of getting the stock for this great distance was only a 2 cent postage stamp. We are improving, and succeeding better and better every day, and, perhaps, I shall get my money back some time, even if I do not this season. Please do not be cross, when it comes your turn to be disappointed a little, and try and think we are working hard to give you all you have paid for.

DEPOSITORY OF
Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

I SEE by a copy of "GLEANINGS," furnished me by a friend, that you have a column for "Blasted Hopes," so I will venture to send you my experience. I bought this spring 76 swarms of Italians and hybrids, in Langstroth hives, and had to move them 70 miles on common farm wagons. I prepared them by nailing a screen cloth over the entrance, and also over one slot in the honey board, and putting nails into each frame by boring through the end of the hive, so there could be no swing. The hives were heavy with honey, and full of bees and brood. I loaded them with straw packed around and between, being careful not to stop ventilation. The first day (April 17th), the roads were rough, and the horse baulked, so we were very late at night getting to our stopping place; consequently the hives were much jolted over rough places in the dark. The next day it rained, and we had more baulky horse trouble. I hired another team so as to lighten the loads, and drove 20 miles that day. Plenty of honey was under the wagons in the morning. The next day was hot and we got home. I opened some of the hives and found the bees all daubed with honey, and some dead entirely; at least in 25 hives the bees were all dead. I went to work at once doubling swarms, fastening combs in the frames, &c. The brood was all killed, and the comb was broken down in almost every frame. A more demoralized, sorry sight, I presume it was never your lot to look upon. But to make a long story short, I have saved 27 swarms, which are in fair shape now.

Here comes another blasted hope: Basswood honey is what we depended on, but the frost has spoiled the bloom, and there is hardly a smell of a chance there. Bees have not made enough to live on since May 1st, until last week. Now they are picking up on clover, and may get some fall honey.

If you know of anyone who has more "Blasted Hopes," tell them to send for our hat. If not we shall consider ourselves the champion in this line.

Now, after all is over, and we can sit down and coolly think, we see where we might have done better, and even have succeeded with all our mishaps. We should have taken out all the honey, leaving only enough for the journey, and then turned the hives bottom upwards; with this additional preparation, we feel confident it would have been a success. There would have been no honey to daub the bees, and all the weight being in the tough brood combs, I think they would have come through safely. Let others profit by my experience. C. A. HATCH.

Loyd, Wis., June 15, 1878.

Heads of Grain,

From Different Fields.

WHAT A WOMAN DID.

We, like many others, have the bee fever. We had 5 strong colonies, but wanted more, so we went about 15 miles and bought another large one, full of bees and honey. It was set in the buggy and came home, when lo! and behold! the honey was running out on every side! The comb had broken down, and the bees were drowning in honey. We opened the hive, and the clean bees soon came out in clusters; but the others were sick. We took them all out, and washed them with warm water, and put them in thin bags to dry. Those that came out in clusters we put in a Thomas hive; it was a midnight transfer. The queen was in good order. The next morning those that we washed and dried were quite lively, and we put them in with the others; in the afternoon they swarmed. We hived them, and they went to work in earnest.

We take Gleanimgs, and think it is worth twice the money. We also have the A B C, which is very good. Mrs. H. Smith.

New Hamburg, Ont., June 18, 1878.

Your bees were suffocated by closing the hive too tight, on such a warm day. Wire cloth should have covered at least the whole bottom, and it would have been better to have had an opening. similarly covered, in the top also. I fear none but a woman would have possessed the skill, even had they the zeal, to have made the best of a bad matter as you did. Keep up the same enthusiasm the year round, and you will surely have bees and honey, to your satisfaction.

DIPPING PLATES OF WOOD, ETC.

Instead of using your dipping plates, which gave me the trouble of brushing, &c., after each dipping, I made some dipping plates of yellow poplar, 3-16 of an inch thick, and use nothing on them but water; it makes sheets of wax which are smoother, and which come off more readily than from your metal plates. After the last dipping in the wax, I dip them in the tub of water, and the sheets of wax come off even too easy. Your plates are always sufficiently wet for another dipping in the hot wax, and if there is too much water on the plates, they don't work as well. Now for the rolling of the fdn. I don't use a brush at all on the top roller, as I have found out that, by giving one turn to the crank after the sheet is out, the bottom roller always applies enough of the starch to the top one to roll another sheet, and so on, without any brush, soap bark, or soap. I made my starch about the thickness of syrup at first, and as it worked well, I did not try it thinner or thicker. P. L. Viallon.

Bayou [illegible]oula, La., June 15, 1878.

We used dipping plates of wood. long before we used them of glass or metal either; and, since receiving your letter, we have made wooden plates such as you describe. They work without any soap bark, or brushing, it is true, but we have never been able to get sheets of a uniform thickness, as with the metal plates, and have therefore gone back to the latter once more. For small sheets, the wood dippers may answer better. We roll the sheets just as you describe. When the machine was engraved, we used a brush, and I presume the brush shown in the engraving gives many the impression that one is to be used.

At present, 1 lb. sections sell slowly at 18c. per lb. What the price may settle down to, we cannot tell, as there is much honey afloat in small lots, filling up the market pretty effectually. We hope there will be a better demand soon. Stair & Kendel.

Cleveland, O., July 6, 1878.

I have had the queen go into the sections with separators! I think they went up in order to get drone combs, as I have tried to keep all such combs out of the body of the hive.

June 20th, I accidentally killed a queen; 28th, I cut out all the queen cells but one, and looked the combs twice over carefully, to make sure there was no other queen or cell; 30th, they threw out a swarm; July 1st, I found the cell that I left still remaining, also some eggs unevenly scattered through the combs; 4th, the queen cell hatched; 10th, the bees swarmed out, and I found no more eggs.

Where did the queen with the first swarm come from? and how about the eggs found?

What will the old stock do now for a queen?

Lebanon Springs, N. Y. Elmer S. Gooderich.

I have had some little fear, that using drone comb in the sections might be more apt to induce the queen to go into them, but as we have never yet had a case of that kind, I cannot think it a very frequent occurrence. Were your sections small, like ours? The queen is much more apt to use a larger section. If you are sure you missed no queen cells I would suggest that some other queen got into the hive by mistake. This they frequently do about swarming time. The old stock will perish unless you give them a queen or brood. If the eggs were not hatched into larvae, I should opine that they were the work of a fertile worker, by some unusual freak of nature.

STRENGTHENING THE COMBS BY WIRES.

My friend, the Hon. H. A. Moody, M. D., of the northern portion of this state, among other things, says, in July No., that wires worked into the comb would be a great safeguard against cracking and bending while extracting. To obviate this trouble I wrap a small copper wire around the frames when filled out. two wires each way; and I have no trouble with comb breaking out while handling or extracting. The wire can be bought for 25c per spool.

I find coal oil effectual in removing propolis from the hands, Dr. M.

Notwithstanding the speculation in buying and selling Gleanings, from and to its publisher, I really don't think I could be induced to take $1.00 per copy for mine.

Now, dear Novice, about discontinuing "Our Homes." If you find a want of matter for "Growlery," withhold "Our Homes." When I read with so much intense joy, how God blesses your labors, and with such lavishness, I find that I have you constantly associated, in my mind, with the celebrated Muller. It is simply marvelous. R. A. Abbey.

Terry, Hinds Co., Miss.

I should object to the wires around the frames, because they would interfere more or less with brood rearing, but it would be a very simple matter indeed, to stretch wires across the centre of the frame before the comb was built, or the fdn. fastened in. Perhaps a thin wire stretched from corner to corner might answer, and this could be done, with our frames, without the necessity of boring any holes for the wires at all. If the fdn. were pressed partly into this, there would be little if any sagging; fine iron wire is very much cheaper, and I do not know why it would not answer. After being so perfectly covered with wax, I do not think there would be any tendency to rust.

I, too, have thought often of Muller, but I shall have to grow a great ways, before I can so thoroughly consecrate my life and business to the welfare of the needy and the destitute, as he has done. Now and then, I get glorious glimpses of the way in which God takes care of, and provides for, such as he. Thanks for your kind and cheering words.

HONEY DEW, ETC.

I have 26 stands of black bees, and they are doing finely this season in making honey; but they have not swarmed much. At this writing they are working finely on the second crop of red clover. I am a reader of GLEANINGS, and think, if I live until another season, that I will try some of the Italians. I have read in the bee journals for several years about the honey dew. I believe they all agree that it is produced by an aphis, a kind of insect, but there is one thing I would like to have explained. Why is it that you scarcely ever see any honey dew, only on a rather cold morning. I hardly ever see any when the days and nights are hot. E. B. HILTON.

Fulkerson, Scott Co., Va., July 10, 1878.

AFTER SWARMING IN ONE DAY.

The section boxes are the nicest thing out; and they suit best in this market. I have sold some for 20 cts. per lb. when other new honey was selling for 15 cts. I'd like to know if it often happens that a second swarm will come out the next day after a first? I divided one, and the one placed on the stand where the old one had stood, swarmed first of any—a large fine swarm. The next day, another swarm came from the same hive, and, after fussing awhile, lighted in front of the hive of the one coming out the day before, and went in, going to work as peaceably as if they had all come out together. One other hive has done the same thing, as to coming out so near together, and I am certain, from the size, that they were not after swarms. What a letter I have written! but then one cannot read your paper without feeling like writing just what one would talk. MRS. F. M. VILAS.

Madison, Wis., July 11, 1878.

Sometimes the weather, or it may be other causes, will prevent a first swarm from issuing, until the queen cells are nearly, if not quite, ready to hatch. In such cases the second swarm may issue as soon as one day after the first. I suppose it was by that strange instinct that prompts any swarm to alight on the spot where one has clustered but a few days before, that induced the second swarm to go in with the first one. Is it by the acute sense of smell, that bees do this? Who will answer? I wish to have you *all* write, just as you would talk; and to go right into your subject, without preface or introduction.

CYPRESS FOR HIVES.

I like the 2 story Simplicity hive received from you well, and am making arrangements to manufacture them. It is the best and best furnished bee hive ever introduced here. I have here every facility for making them, and good material in cypress timber, such as they used in the building of Solomon's Temple. It is a little more porous than white pine, more durable, and nearly as easily worked; and, I think, is admirably suited to the construction of bee hives. It is something between cedar and white pine. A. SPENCER.

Indian Bay, Ark., May 25, 1878.

This morning I opened the chaff hive I bought of you, in which, on June 5th, I hived a large swarm of common bees. On examination I found the comb frames well filled and six frames of sections all filled. The section boxes I replaced with others. They were not as nice as I expected, but I think it altogether my fault. I had placed them too far apart and the comb bulged out; but upon the whole it was admired by those who have kept bees.

W. H. HOPPOCK, Somerville, N. J., July 4, 1878.

You should place the sections tight up, of course, and if you wish to have them nice, they should be taken out just as soon as you can find a single one sealed over perfectly.

BEE STINGS AS A REMEDIAL AGENT.

As some of our friends have been borrowing trouble, for fear that getting stung would induce untold maladies, somebody sends us a slip clipped from some newspaper. While reading it, I was reminded that a bee-keeper from a neighboring town told me that he had been suffering greatly from neuralgia for several days, but, on getting stung "right on the spot," by one of his bees, the pain left at once, and has never returned; the bee sting proved more potent, than the most powerful liniment. Here is the slip of paper.

Two chronic rheumatics in Germany have lately been cured by the stings of bees. One of them, a farmer's wife, who had suffered for six months so as to be unable to sleep, and almost unable to use her right arm, kept three bees on the arm until their stock of poison had exhausted itself. The effect produced was astonishing; as the lady, even on the first night, was enabled to enjoy a good, long sleep, the first time for at least six months, the racking pain being entirely gone. The arm was, of course, swolen greatly in consequence of the stings, but the swelling disappeared gradually upon the application of some cooling lotion. All pain was gone, the lame arm recovered its previous vigorousness, and not the least sign of rheumatism has since shown itself.

Goods received all right. Honey extractor came to hand the 6th (express charges were 90 cts), and it works like a charm. I like the drone starters for honey boxes; the bees work on them and leave the others alone. Every body that sees your section boxes is pleased with them. To-day, a man offered me 30 cts per pound for all the honey I had to spare in them. I sold some extracted honey for 20 cts.

Shamburg, Pa., July 10th, 1878. D. S. OILER.

I have an increase of 9 swarms from one, all in splendid condition, and 115 lbs. of comb honey from the same, to date. "How is that for high?"

Milton, Ill., July 16th, 1878. A. L. FOREMAN.

SWARMING TRIALS.

I only commenced bee keeping this year. I bought two colonies of pretty poor hybrids in common boxes. During the spring they turned out 3 swarms each; but 2 of the swarms vanished to the woods, notwithstanding I wore out a couple of tin pans, broke a brass dinner bell, smashed a mirror worth $6.00, and crawled through a marsh waist deep in mud after them, trying to get them to "stop a leetle;" but they could not "see the point;" so they were lost! My faith in "bell ringing," "tin pan wearing out," and all such and diverse contrivances was worn thread bare.

Now, friend Root, I have 6 colonies in box hives. I want to "do something," but hardly know what to *start* at, or how to start it. Can I transfer these bees during Aug. or Sep.? I want to move my bees about 300 yards from where they now are, and *can't* move them a little at a time, as you direct. How can I manage it? and at *what* time? The thermometer never goes below 20 degrees above zero here. Will it be necessary to provide Chaff hives, or give *any* winter protection? I wish to Italianize; when can I commence trying to? R. C. TAYLOR.

Wilmington N. C., July 14th, 1878.

You can transfer in Aug., or Sep., if there is not too much honey in the hives, and you do not get robbers at work. Move the 6 colonies all at once, and then set a single hive of the same general appearance, to catch the returning bees. This decoy hive must have a frame of brood to make them stay, but need have no queen. After all are moved, take the bees from this hive every night, and shake them before the hive that needs them most, until but few return. Some will probably be lost. the best you can do. If moved in the winter, no such measure need be taken. It is not necessary to provide chaff hives, or chaff packing in your climate, but I think much could be saved by so doing; we find the chaff coverings of great advantage, even in April and May. Italianize now, or any time when queens are sold.

I admire your zeal and spirit in chasing your run-a-way swarm; but I think you had better leave the looking glasses at home next time.

PROPORTION OF HYBRIDS AMONG THE DOLLAR QUEENS, ETC.

I wish you, queen raisers, would let us know in your advertisements what per cent of your queens are purely fertilized. I have destroyed hybrid queens enough this summer (in doubling up swarms) to go into the dollar queen business myself; but, if others are not more certain of getting queens purely fertilized than I am, the testing business wouldn't be profitable. Every body keeps bees here. Box hives and black bees are the rule. I made one effort to Italianize my bees, and they are all hybrids now.

Tell our friends, if they want an extractor, to buy one ready made. I bought gearing from you and had one put up here; it cost me about eleven dollars.

We are having a great harvest of honey dew.

Aullville, Mo., July 16th, 1878. A. S. Davison.

Large apiaries of pure Italian bees, I presume, will give the largest proportion of pure queens. Of the queens we have bought not more than one in ten have proved hybrids; I think those reared in our own apiary will average still better.

SCISSORS FOR CLIPPING QUEEN'S WINGS; AN IMPROVEMENT SUGGESTED.

My neighbor, J. B. Keeler, showed me a pair of scissors he received from you. I have a pair that I think is very much better for clipping queen's wings. The points are bent so that you can slip one point under a queen's wing as she sits on the comb; or when she tucks her head under a clump of bees you can clip her wings and she will not know it. With the straight points you can't do it. If you will try a pair like mine, I think you will find them just the thing. I got them in St. Louis, of a dealer in surgical instruments, and had to pay $1.50 for them. I think you could get them and sell them for a less price. J. M. Valentine.

Carlinville, Ill., July 13th, 1878.

Your idea is a good one, but the scissors would necessarily be considerably more expensive, and as a good many who practice artificial swarming are beginning to doubt the advisability of clipping queens, I hardly think it will pay. Should we, however, adopt such scissors, we will, at least, give you the credit of the suggestion, my friend.

STAINING THE WOOD FOR SECTION BOXES.

How would it do to stain or dye section boxes a dark color? Would't it prevent their tarnishing, and tend by contrast to make the honey look whiter? J. E. Dean.

Fishkill, N. Y., July 18th, 1878.

It is a fact that the wood gets dark and unattractive, if the sections remain very long waiting for a customer, and, since you have mentioned it, I will say that I have been thinking of staining the wood a dark purple, similar to the way in which the Indians stain their basket work. This purple is bright and attractive, is very cheap, would cause the honey to show off to a good advantage, and is, I think, permanent.

Seven minutes later:—I have just been and *dyed* a section, but none of our folks seem inclined to pronounce it a success. This is to notify everybody against patenting the invention.

WHITE WOOD OR TULIP.

The sum of my observations on whitewood, or *poppler* (note the spelling), or tulip tree, is that it blooms during white clover. When your bee wishes to extract honey from whitewood, he does not go to work as upon the white clover. The honey seems to be secreted on the inner surface of the large tulip shaped flower, from which he licks the honey as your cow would lick the bottom of her salt trough. There is not enough to be visible to the eye, but it is distinctly perceptible to the taste; so I hardly think the bees would get a table spoonful of honey from one flower, as stated in Aug. Gleanings, 1877, page 218. It does not contain even a drop, much less a spoonful. So much for my observations during the present summer; only, for ought that I know, it may not always be so. G. W. Haven.

Bloomingdale, Mich., July 10th, 1878.

P. S. In building your new factory fail not to put in a "central stairway." G. W. H.

I think the statement that a single flower would furnish a spoonful of honey should have read, a spoonful in a season. It is quite certain that the quantity of honey is sometimes greater than you have mentioned, for I have heard of the children gathering the flowers expressly for the honey they contained. I have seen a single Japan lily which contained several quite large drops of honey, sparkling on the inner sides of its petals. May not such be the case with the tulip flower?

I will try to remember the "stairway."

MOVING SHORT DISTANCES, TRANSFERRING, FINDING QUEENS, ETC.

I have some swarms in an inconvenient place. Could I, by confining them to the hive—say 48 hours, move them a distance of 75 yds.? or would it be better to let them alone until winter? I finished transferring my last hive yesterday. I take them into my house, as I do not see how any one can transfer, at this season, without making the honey run. After transferring I cover them with a sheet or a musquito bar, and let them remain in the room until they fix up things. I have had no robbing.

I did something yesterday of which I feel quite proud. I had been watching my last box hive, for a second swarm, which finally came out and I put them in a hive, but all went back; a second time they came out and returned, leaving in the hive a queen with about 20 bees around her. I had no time to watch any longer, so I concluded to fix things up myself. I dipped up bees from the old hive, and put into the new; then removed the old hive and put the new one in its place. I took the old box into the house, transferred the combs to two new hives; divided the bees and gave one a queen and the other a queen cell, and covered each with a musquito bar. So I made 3 swarms, and had 3 queen cells left over, for which I had need. I wish to Italianize my apiary, but groan to think of the labor involved in catching 25 black queens. Can you tell me some easy plan. Henry B. Shaw.

Lake St. John P. O., Concordia Pa., La., July 16, '78.

Your bees in an inconvenient place could be moved best in weather so cold that they would not fly for several days; but, if you do not care to wait so long, you can get them out by catching the returning bees on an empty comb for several days, and carrying them back. Shutting them up, I fear, would do but little good. Your plan of artificial swarming and transferring is all right. There is no way of Italianizing without hunting up your black queens, but our boys would find your 25 black queens, and think it only fun. Get your neighbors who are learners in the business to help you, especially the boys. Their sharp eyes will find a queen, after a little practice, in a twinkling; and if you can get a half dozen of them at once, and make a "bee" of it, you will find it but a short job, and lots of fun, besides.

CLIPPING QUEENS, ETC.

I caused the death of a fine young queen yesterday by clipping her wing, and then placing her back on top of the frame instead of where I got her; the first bee that got to her stung her. I know I did not hurt her while I had her in my hand. The dead queen had just commenced laying.

From one of your larval queens, I took this morning, 48 1 lb. section boxes well filled. I had previously taken 24 from the same, and presume there are 16 in the lower story; 88 boxes full from a young queen in chaff hive will do.

I get 16⅔ cts per lb. for box honey. I am glad it is cheap; more can use it freely. I would like to see it 10 cts., and think I could make it pay at that,

Pewee Valley, Ky., July 11th, 1878. A. W. KAYE.

I would not take a queen in my hands to clip her wings; too many cases just like the one you have given have been reported. I shall have to explain that the term, "larval queen," used by our friend, means a queen raised from larvae received by mail.

I, too, rejoice to see honey so cheap, although I must confess to a momentary feeling of regret, when I found that the receipts of our apiary were going to be so much less than we had expected. We rejoice when we learn that things we have to buy are lower; why not, when things that others have to buy are lower?

I hived a swarm on Monday, the 24th of June, and on the second Saturday after, opened it and found all the frames capped over, and section boxes partly filled; it may not be strange to you, but looks like *business* to me, being a novice in bee culture. A number of bee men examined the hive and appurtenances, it being the first artificial comb ever seen here. MRS. GEO. F. BAILEY.

West Liberty, O., July 9th, 1878.

I am a rather new scholar in the bee business, although I had a few bees years ago. I wish to learn what I can in the business, etc. Now, if I come to see you, to *look at you* and your manner of doing business, is the "*latch string in, or out?*" It will cost me something to come, and I want to know if you "entertain strangers;" *not* that I want *you* to *board and lodge* me, but can or will you show me what you *have* and make in the *bee business*.

Springville, N. Y., July 6th, 1878. P. G. EATON.

To be sure the "latch string" is always out; and you are perfectly welcome to go any where, examine every thing, and ask all the questions you like. I cannot always wait on you individually, and I may, at times, find it necessary to refer you to the A B C book or to the hands; but, if you will excuse *me* for keeping right on with my work when it is pressing, you are most heartily welcome, at all times and seasons.

VIEWS OF APIARIES.

I send you a stereoscopic view of my apiary, taken in fruit blossom time. You will notice my hives vary in outside appearance, but the frames are all interchangeable. On the left is the bee house; at the right, just discernable, is my dwelling. I would like to exchange with other bee keepers.

H. R. BOARDMAN.

East Townsend, O., July 16th, 1878.

Thanks. Many very pretty views are sent us, and I would be very glad to have them engraved, but, to tell the truth, but few of them display the order and system that I feel we *ought* to aspire to. In nearly all your apiaries, my friends, your hives are of all sorts and sizes, and placed in all sorts of positions. Some are close together, and some are far apart; some new, and some old; some painted, and some not painted. A great many of you will persist in arranging them in long rows; this is neither well for the bees, nor pretty to the sight. I do not expect you will all have them arranged hexagonally, but you can choose other regular and pretty forms. I am sure some of you can devise some neat and tasty forms, especially for small apiaries; something like the one given last month. Send them in, and I will take pleasure in having them engraved.

Messrs. Thurber & Co.—I have several of A. I. Root's hives; out of one I took, this morning, fifty 1 lb. section boxes well filled.

W. H. HOPPOCK.

Summerville, N. J., July 4th, 1878.

CLOVER; WHY BEES WILL NOT, AT TIMES, WORK ON IT.

We have an abundance of white clover, and I have traveled over acres of it, but have not seen a single bee on it. At what time do bees get honey from clover, if they do not get it when in bloom?

Empire, Wis., July 8th, 1878. JAMES LAFFERTY.

Honey is gathered from white clover with comparative slowness, and at the time when you wrote, they were probably at work on basswood; or they may have been at work in some other locality, on clover that furnished more honey. They will often pass right over a field white with bloom, for some one more distant, that, we *presume*, furnishes more honey.

RESERVE QUEENS.

Please tell me how you manage to raise and keep queens, so a person can have them on hand when he wants them. Would it not do to divide bees yet this summer, if a person had queens?

Maxvill, O., July 11th, 1878. B. N. RUDESILL.

Raise queens as advised in the A B C, under artificial swarming, and keep them in the nuclei. You can keep them in a one comb nucleus, but they are so apt to swarm out, or get robbed, that I should hardly advise less than 2 frames, and 3 are safer if you wish to keep the queens until very late in the fall. You can keep queens safely a couple of weeks, in our candy queen cages. Put in 15 or 20 bees, and see that they have plenty of candy, made of honey and sugar. The cages must be kept in a warm place, or they will die in a very few days. If put over a strong colony of bees, they may be kept a couple of months in the summer season. With reserve queens on hand, you can divide a colony at any time, in winter or summer, providing only that there are bees enough for two colonies; if they lack stores, of course you must feed.

I would like to learn through GLEANINGS, if bees can be made to work or not. I have got 7 stands that I kept over winter, and they don't appear to want to do much. Whether it is they have nothing to do or whether they are too lazy, I don't know. I have got the Langstroth hive, with honey board on top of frames, from ½ inch to 1 inch thick. Is that too heavy to put honey boxes on?

S. M. PEACHEY.

Allensville, Pa., July 8th, 1878.

I have never seen any bees that I could not make "work." If they have not got a good laying queen, give them one, then give them room in the hive, and get them to comb building. You certainly have not been so careless as to allow them to get their hive so full that they can not work? Honey boards are now pretty generally discarded, because they prevent the sections from coming close to the bees where we want them. A lot of hives recently came from Michigan, with very pretty light honey boards, but after using them a month or two, our boys declare they never wish to see another wooden honey board. Put your surplus boxes into the broad frames, and when you wish to cover the brood frames, use a sheet of enameled cloth as we have described in the A B C.

UNUSUAL KILLING OF DRONES, AND HOW TO PREVENT IT.

I have a question to ask. I have been a bee-keeper for some 12 years, and saw this week a freak of the bees that I think unusual. I made up a new colony from a very strong stock, by shaking the bees from the combs and allowing but few to adhere thereto; allowed them to remain 36 hours and then inserted a queen cell. The queen emerged in a few hours after; but what seems strange to me is the fact, that the bees, although they had an abundance of stores, commenced and continued to kill their drones until the hive is now entirely without the necessary male population. Of course the flow of honey ceased with this new colony, as the bees were too young to go to the fields; but what appears so strange to me is that a colony of young hatching bees with an unfertile queen should destroy all their drones. Why is it? I was careful to see that the old queen remained in the hive I took the brood combs from. W. J. SHERRIFF.

Pittsburgh, Pa., July 12th, 1878.

I can not account for the case you mention, farther than by saying, that the promptings of instinct seem sometimes to be at fault; as, for instance, in starting a queen cell over a drone larva, paying homage to a fertile worker, and the like; and I should class yours in the same list. Had you used both old bees and young, I do not think the drones would have been killed. Those who wish to reserve drones for late queen rearing, should remember to make and keep queenless, a few stocks, which have the drones in great abundance.

ABSCONDING WITH A CAGED QUEEN, AND WITH EGGS IN THE HIVE.

I had one swarm that tried to go to the woods while the queen was caged in the hive. I introduced a nice Italian queen to another hive all right, and she went to the woods next day, leaving a hive full of new comb, some sealed honey, and a lot of eggs she had laid. Now, "how is that for high?" Can you explain it? J. F. MEYER.

Wyandotte, Kan., June 25th, 1878.

Both cases mentioned are quite unusual ones. A swarm will sometimes come out when the queen is caged, but they will come back as soon as they discover her absence. I have known bees to abscond in several instances, where the queen had stocked the hive with eggs only, but scarcely, if ever, after the eggs had hatched into minute larvae. The bees seem to have nothing to busy themselves about, with eggs alone, but with unsealed larvae there is always work to do, and bees, like every body else, must be kept busy, to be kept out of mischief.

I received "Queen Bess" and her escort all right, and do not wonder at it, she was so snugly ensconced in her little *safe*, and so amply provided with food to last 2 or 3 weeks. A. CALL.

Bryant, Ill., June 30th, 1878.

HIVE MAKING.

I am not a mechanic, but have to rely on others to make my hives. In the spring of 1877, I bought of you a sample hive and employed the best workman in the village, but his work was not correct; some pieces were too short, and others too long. After furnishing the material, I have to pay more than you charge. This spring I had another lot made up without any improvement, nearly all being too long, and there was no fit in covers. I often wish that I was nearer you so that I could avoid the high freight charges. L. G. RUCHER.

Patrick Court House, Va., June 24th, 1878.

The same difficulty is met, my friend, all over our land, and I presume all over the world, for that matter. I think you can get accurate work in this way: give your carpenter a single piece, and tell him you want so many, just like it, made of seasoned lumber. Tell him, unless they are just like it in every respect, they will be of no value, and have a clear understanding that you are not to pay for them if they do not come up to the mark. Before you pay for them, examine them in every respect. When one piece is finished, give him another, and so on, clear through. This plan will likely cost, but it will insure good work. When the hives are put together, examine the first one most critically, in every way in which it is to be used, and do not have a quantity put up, until you are sure all is correct.

Can you throw any light on the following occurrence? Toward the end of June, my bees commenced to swarm. We successfully hived them, 8 in number, and most of the swarms had made a good deal of comb, when, one by one, they left for the woods. I only had 14 stocks, and as this happened last year in exactly the same way, it is rather discouraging, to say the least of it. What can I do to prevent it? My hives were the common box hive. I am getting by degrees the movable frame hive, and hope, when I use them altogether, to prevent swarming. One thing I don't understand in GLEANINGS; you say, "Place a piece of brood comb in the new hive, and the swarm will rarely leave." Where do you get the brood comb? and how do you place it in the hive? FRED. PENFOLD.

Richmond, Ind., July 9th, 1878.

If your bees had a fertile queen, and the hives contained plenty of unsealed brood, when they deserted, I should ascribe it to what seems to be a kind of swarming mania that sometimes possesses bees during a rainy season like the present one. Who ever uses box hives must expect to have a host of such and similar troubles. A frame of unsealed brood may be taken from any hive in the apiary, and you can hang it in the new hive in any way you choose, only so that the frames near it are all properly spaced, that you may not have crooked combs. One great advantage in making swarms artificially is that it almost, if not entirely, prevents this swarming mania, such as has been reported this season from almost every quarter.

REPLY TO GEO. O. CHURCHILL IN JULY NO.

Bees in this section of Mass. will store about 25 lbs. of surplus honey, when run for surplus alone. Some few swarms will give 50 lbs.; occasionally one will give 75 or 80 lbs. The most I ever obtained in a single season from one stock, was 103 lbs.; and that but once in 15 years. As a rule here, the hive that casts a swarm I don't expect any surplus from; but, when one swarms early and the harvest is continuous, I sometimes get from 10 to 25 lbs. from the original stock, while the new swarm, unless it casts a maiden swarm, will double it. Last year, I made artificial swarms as early as the 15th of May; then, both stocks gave about 25 lbs. But, in keeping a lot of bees, one will always have some with the queen out of condition when the flowers are in condition. Queens will vary so about their time of laying too, that the hive with a late laying queen gives—0; while an early laying queen gives the profits. W. O. SWEET.

West Mansfield, Mass.

Our Homes.

For everyone that doeth evil hateth the light, neither cometh to the light, lest his deeds should be reproved.—John, 3; 20.

SEVERAL years ago, a very intelligent bee-keeper paid me a visit of several days, and as he had been visiting bee-keepers and localities with a view of selecting a new ground, our conversation turned upon the prominent bee men and writers. At the time, I was not a believer in the Bible. or at least I claimed I was not, and he seemed to rejoice when he had discovered the fact; if I recollect aright, he made the remark that the greater part of our number were skeptics; that Mr. A. did not believe in religion, and worked with his bees on Sunday; also Mr. B. and C. and D. and E.; that Mr. F. was a Free Thinker; Mr. G. a Spiritualist; Mr. H., something else, and so on. I remember a little feeling of pain at this, for lightly as I was in the habit of speaking of the Bible, I could not help feeling a slight shudder. Would he, while visiting other bee-keepers, say of me, "Yes, and Novice, too, does not believe in Bibles and churches and Sunday schools; but says it is an old piece of superstition, and it is high time that it was all done away with, and reckoned among the things of the past?" It is true, my friends, I was fond of saying just those words: but, mind you, I had not been in a Sabbath school for nearly 20 years, and my knowledge of the Bible was just about as definite as of Sunday schools.

Finally, said he, "Oh! what sort of a man do you think Mr. so and so is?"

"A very pleasant writer, and a good sort of a man, is he not?"

"Well, you would not think he favored religion very much, were you to hear him talk; not he. He has a very pretty home, but when he introduced me to the woman with whom he is living, he did so with an apology, because she was not his wife." I started in surprise and horror.

"Did you remain?"

"Why, yes; I did not want to hurt their feelings. He is a Spiritualist, and the Spirits told his wife she had better go away with another man, and she sent this woman to take her place. He said they were going to be married after a while."

I presume I shall be accused by some, of having descended in these Home Papers to scandal and gossip, and, at about the time this conversation took place, I was, myself, loud in my denunciations of gossips and sewing societies; but I thank God now, for a people who will talk out, and condemn crime and iniquity. even if they do, at times, exaggerate and overstep the mark. I have given the above conversation as nearly as I can, if not in the exact words, in substance. I have given it, because I felt the lesson was too great a one, to be lost. Time passed, and I received letters as usual from the man who had thus dared to defy the laws both of God and man, but it was impossible for me to reply to him, in the same spirit I had done heretofore. Pretty soon, he wrote that business called him near me, and he should like to pay me a visit. I did not know what answer to make; I dared not tell him the truth, and I could not feel it my duty to invite to my home ————————.

The subject lay on my mind, on my conscience perhaps, for it was the first time I had ever come so near being face to face with that yawning abyss that is so terrible, and yet is approached by such very quiet and innocent looking paths. It is quite likely, the thought of this man's life had something to do with my conversion. Some of you remember the March No. (1877) that gave notice of my conversion. I expected persecution, and expected to lose some of my subscribers, when I wrote what I did. I I do not know whether I lost any or not. I do know that the first vehement objection to having such things in a bee paper came from this man. A few months later, when the Home Papers were commenced, a letter came from him demanding that such foolishness be stopped; saying that I had a department in my paper for humbugs and swindles, and, inasmuch as religion was the greatest humbug and swindle the earth had ever been cursed with, it should be shown up in that department. I have now, perhaps, a million of letters filed away, that have come from bee friends. In reading them all, I have never seen anything approaching an oath, with but one exception. Need I tell you that this one came from the man I have just been speaking of. I replied to all, even his threats and blasphemy, as best I could, but, in all my experience, I have never found one so bitter and so angry, at the mere mention of the Bible or Jesus Christ, as this man has been. In one of his letters, I believe he stated he had once been a professor of religion, and therefore knew all about it.

I have had one case to deal with, that is somewhat parallel. I have mentioned before, a young man whose besetting sin is intemperance. While sober and steadily at work, he believes in God and the Bible; but after he has been on one of his drunken sprees, the sight of the Bible seems to anger him beyond measure; and then he is skeptical. He has been working with us for the past three months, and has been as steady and faithful as we could ask, until something turned up in his work that displeased him, and he got angry and took God's name in vain. This was, as I told him, straight in the wrong direction, and a pulling up of the stakes he had been slowly planting, to hold him in a better way. After swearing, he began to be absent from the Bible class and Sabbath school, and finally, one night after 10 o'clock, one of his old comrades offered him some whisky and he drank. Down, down, he went at once; and the next day, when he had recovered, he had lost all faith in religion, and defended his old books of Thomas Paine's, and thought he would rather be a Spiritualist. I questioned him closely, and he finally told me that when he concluded to give way to temptation he thought he could keep it all from me. A few months ago, in the jail, he told me, after I had knelt with him in prayer, that *he* worshipped the God of truth.

"Now Albert, you say you worship truth, and yet you have just admitted, that had I not read guilt in your actions, you would have gone on with your work, without saying a word to me of what had happened?"

"But if you did not ask me about it, would I have told you any untruth by not saying anything?"

"Does Thomas Paine teach that kind of 'reasoning,' in his Age Of Reason?"

He made new promises, and declared as before, that it would be the very last time, and that I would see how well he would do, if he could just come back once more. For over a week, he tried hard to do right, was faithful and diligent, and did full as much work as any one of the boys. Last Saturday, there was an excursion to the lake, and he asked to go. I reminded him of the danger, but he smilingly told me I need have no fear, he would be home at 6 o'clock, all right. As he had not made an appearance on Sunday P. M., the livery man went after his horse and buggy, and found it at a neighboring town. Albert got into a disgraceful drunken row, and was brought home and lodged in jail, yesterday A. M. The first word of welcome I received was accompanied with an oath, because he was sentenced to 10 days on bread and water. As soon as I opened my Bible, he declared he was a Spiritualist.

"I rather think you are, Albert, for you are, most assuredly, not a follower of Christ. I have no time to talk "isms," for I have left all of my business, to come over here and do some business with you, if you are willing."

"I am certainly willing to do anything to get out of this trouble, and"——

"No more promises, please; tell me where they sold you the drink."

"I took it from Medina, with me."

"Albert! do you mean to say that, after that frank and seemingly honest promise, you took the money I gave you, and went and bought whisky with it?

"Do you not see how completely the Devil has got hold of you? You are naturally truthful, but after you gave way to temptation for drink, you planned to get it without my knowledge; then you listened to him when he told you that you had been abused, and so you got into a fight; next he advised you, through an evil woman in the guise of friendship, to blow out the brains of the mayor of the town, because you were sentenced to 10 days; and he has just now told you to take God's name in vain, right before me. Satan has been 'clawing' after you for many days past; do you not see where all this tends?"

"I guess you are right, Mr. Root; I did not expect you would ever give me another chance, or come near me any more. A friend got the liquor for me."

"A *friend!*" What queer ideas people sometimes have of friendship.

My experience seems to teach that it matters but little what the form of wickedness is, the feeling of dread of sacred things seems to be about the same; and the dislike a guilty man has for the Bible and Christ's teachings seems, sometimes, to be almost akin to that which a mad dog has for the sight of water. It is a great deal easier for one who is doing wrong to claim that he is a Spiritualist, than that he is a follower of Christ, for in his own heart, he feels the glaring inconsistency of the latter claim. If you were crossing a stream, and you should see the water coming down all riled and muddy, you would infer that somebody or something was above stirring it up; on the same grounds, when I hear anyone taking God's name in vain, or loudly denouncing the Bible and its teachings, I judge from past experience that something has stirred up the muddy waters, and that the cause would readily be found, were we to search for it.

Is this a pretty severe doctrine? Well, look about you and see; and if you are not satisfied then, go into your jails, get acquainted with their inmates, and hear their stories of temptations and falls. Follow out these threads of human life, and try to lift up the fallen, and then see how much aid you get from those who take God's name in vain, and denounce the teachings of Christ when here on earth. Notice what the effect will be on one who seems lost by intemperance, or other vices, and who has almost decided to accept Christ and rise up, when a skeptic or a profane man comes along and ventures a little of his doctrine. I care not what "ism" you profess, so that it produces real tangible good, and I have no objection to having Sunday on Saturday, or to saying Sabbath school, in place of Sunday school, so that we do not waste time over unprofitable controversies and discussions. I would let the majority of the people decide all such, as it seems to me, unimportant matters. Whatever day seems to be generally observed as the Sabbath, I would observe, and to intrude such a subject on one who is just looking to God to help him out of the mire of sin would seem to me perfectly awful, if I may be allowed the expression.

I do not know but I should pass the subject of the form of baptism in the same way. When a man is converted and begins, all at once, to pay his debts, and tell the truth, which he had not done before, we can safely trust God to tell him how he ought to be baptized, and if God should fail to tell him anything about it, I would give him the Bible and let him alone. Outsiders and skeptics are, I feel, somewhat excusable, in telling us that religion is a superstition of the past, when they find us occupying the greater part of our time in discussing comparatively unimportant forms and ceremonies, but when they find a Christian who is active and wide awake in reforming men from intemperance, untruthfulness, dishonesty, impurity, blasphemy and the like, the whole world, without a single exception that I know of, bow their heads in honest sympathy, and from the bottom of their hearts, silently, if not outwardly, approve.

"For he that in these things serveth Christ, is acceptable to God, and approved of men. Romans, 14; 18.

When a man who has been converted puts his hand into his pocket and hands out the hard cash, for wrongs he has done years before, that single act is of more weight in a community than all that can be written and said, to discourage infidelity. When I see people working hard to get converts to their especial creed, to their views of baptism or observence of the Sabbath, I think of the words,

For ye compass sea and land to make one proselyte, etc. Mat. 23 ; 15.

Again ; a scrap of paper was once brought me narrating how a boy had gone to Sunday School and on coming home had deliberately taken an axe and chopped off his right hand. This was in consequence of Bible teachings and Sunday Schools, so the paper said. Well, if people in general are going to understand the Bible in that way, and act accordingly, I would advise burning up every copy that can be found. But, if distributing Bibles should have a tendency to induce a man who is living with a woman unlawfully, to put her away, even if she were dearer to him than his *own right hand*, I would say give us the Bibles, by all means.

If thy right hand offend thee, cut it off, and cast it from thee. Mat, 5 ; 30.

I tell you, my friends, the time was when the above words shone forth from my Bible, as if they had been written with letters of fire ; and I cannot but think that God takes care that the purport of them is seldom, if ever, misunderstood by those who are seeking for the true light.

The Bible is misunderstood by those who willfully misunderstand it, but not by the honest seeker for guidance. As I came down street a few minutes ago, one of our lawyers remarked that my boy in jail was too big a job for Christianity.

"You will believe in Religion then, if it makes him a sober man?"

"No, for even Mahomedanism reforms men."

"Does it? Then God bless the Mahomedans, say I."

"And you would join hands with them in the work?"

"Most willingly."

"And how about a man that does not believe in any Religion?"

"I would join hands with him too, with all the pleasure in the world."

Is there any need of clashing, or need we spend time in arguing? An old and valued friend, who knows well my many weaknesses, who is a sceptic, or at least has been, writes the following. He has taken me to task several times so severely, (and if I am correct, in regard to these very Home Papers,) that I was astonished somewhat, as well as rejoiced, when the letter came.

I have just finished reading "Our Homes" in June GLEANINGS. Your text and closing expression are noble expressions. What a glorious thing it is to be entirely absorbed in working with and for our fellows! You have my fullest sympathies both in your business and work for your fellows. I have often longed to be just so engaged, and have done a little; and every time I read your paper, I have a fresh impulse to start right out here, to set in action the latent good in this sparsely settled and demoralized community, where six pretty good men (their homes are almost all in sight of mine) are now in jail awaiting trial for the assassination of a former citizen of your county. I can say of this as of most wickedness, they, at least, hardly know what they do. And if we could only have favorable influences and stimulate and cultivate the intellectual and moral powers, until they get the ascendancy over their sensuality, a revolution would be accomplished.

We may differ in our theology, and question whether man fell from an angelic position to his present one, or whether he is advancing from a lower type to the angel we would have him be, but I think there is that in all men, in a higher or lower degree, which, if placed under proper influences, will advance to much excellence. This is why we should love our enemies, and love the wicked. It is impossible to love an object that has no lovable qualities in it. It is this undeveloped good in humanity that we love and confide in. We may attribute our change to the influences of an external spirit, but there are hidden powers and influences within us, that, if set to work with all earnestness and meekness, will so revolutionize us that we are almost surprised at ourselves. I see in you only the qualities that always existed, only the better ones are in their highest activity. You are the same person that could not, in your wicked state, exact the price of the watch spring of the man who did not get it.

You suggest that you are not sectarian; I am glad you exclude it from GLEANINGS. You, of course, can not see that your pleadings for the sect called Christian, can be such, and under the circumstances, I make no complaint. I do not object to it farther than is necessary for a rational, moral being, in the present age, to do so in leaving off what is superstitious in this and all other religions. If Jesus were here I certainly would be one of his nearest comrades.

When you say, "Ask, and you shall receive; seek, and you shall find," and then tell us to use the powers God has given us to search for the truth as to the nature and use of things, and when you use the more rational and practical term "impulse," instead of the Devil or Spirit of God, I think you have hit on a strain that becomes your paper.

Scenega, Cal., June 23, 1878. R. WILKIN.

Is it not my duty to go on with the Home Papers, when I get such letters as the above? I stated recently that I had received perhaps a half dozen letters complaining of the Home Papers ; perhaps, I should have said letters from a half dozen different persons ; for the individual I have mentioned in the former part of this paper has been writing letters of this kind, not only to myself, but to others who have forwarded them, or extracts from them, to me, almost ever since they were started. These, of course, have not been without their weight, and a frank and honest young friend in his vicinity has had quite a correspondence with me on the subject. I, finally, without any definite statement of what I knew, cautioned my friend of his danger in having such a counsellor. He admitted and deplored the fact, but said the man was a most exemplary one in other respects ; that he had seen him moved to tears at such a trifling thing as the departure of a hired man. Oh, the subtleness of sin ! I have seen a man and woman both moved to tears, just from reading a touching sketch from Dickens, when at least one of the parties knew that the heart of a kind and gentle wife was at that moment breaking, and breaking, too, in a way that would have made it a relief to have seen her husband laid in an honest grave, to have seen him breathe his last with the same, old, childish innocence that he possessed, when he first won her girlish heart. My friends, the religion of Jesus Christ and that Bible you have despised, pulled that man from the mire in which he had been for years sinking, roused his latent capabilities for good, and not only brought him humbly at the feet of Jesus, clothed and in his right mind, but with floods of penitent tears, at the feet of the true and faithful wife that God had given him, while he confessed and asked pardon for the years of suffering he had caused. A new love and courtship came into that family, and as her loving smile of years ago came back, as he welcomed her morning, noon, and night, with his old boyish devotion, can you not imagine that the angels looked down from heaven and smiled, too, over that happy household? This is what is in store for those who choose to follow Christ; and oh, my friends, can you not see, on the other hand, the cloven hoof that soon betrays itself, where one follows almost any other path.

The Lord *is* my shepherd, I shall not want.
He maketh me to lie down in green pastures; he leadeth me beside the still waters.
He restoreth my soul: he leadeth me in the paths of righteousness for his name's sake.
Yea, though I walk through the valley of the shadow of death, I will fear no evil: for thou *art* with me; thy rod and thy staff they comfort me.—Psalms, 23; 1-5.

BOTANY OF HONEY PLANTS.

MOTHERWORT, AND RABIT FOOT, OR STONE CLOVER.

I AM now at a place where the bees are very active and have plenty of honey. They seem to be abundant on the enclosed plant. Please let me hear what it is; also the price of the seed and its reputation as a honey producing plant.
W. F. BASON.
Haw River, N. C., June 20th, 1878.

P. S. I add what we call wild clover. Let me hear if it is a good honey yielder. W. F. B.

The plant first mentioned is motherwort or *Leonurus cardiaca*. It is a relative of catnip, and both belong to the mint family. It is valuable as a honey plant, since it blooms in June and remains in bloom through July and Aug., and furnishes nice, white honey. It has been spoken of several times in back Nos. of Gleanings. The seed is advertised in our price list.

Of the second plant, which you call wild clover, Prof. Beal says, "It is *Trifolium arvense*, rabit foot, or stone clover, an insignificant annual, which will not likely be of much value, if we judge from the way it grows in the north."

I will send you a few buds of one of our best honey plants. It will be in bloom in a few days, and lasts several days; it generally blossoms from the 4th to the 10th of July, and is covered with bees from morning until night. It grows from one to two feet high, on our flat, timbered land mostly. Please give the name in GLEANINGS. WM. FOSTER.
Latona, Ill., June 26, 1878.

The name of the above mentioned plant is *Pycnanthemum Linifolium*. It is a sort of wild basil, of which we have a dozen or more. They belong to the mint family. W. J. BEAL.
Lansing, Michigan.

BUFFALO CLOVER.

Please find enclosed a specimen of clover, which I plucked from a small patch found in one of my neighbor's fields. It is a new variety to me, and the bees are working on it freely. It grows about 15 in. high (what I saw of it), has a straighter stalk than the red clover, and has a very nice white bloom. A German told me that it is called "turky clover." I would like to know what variety it is; also of what value it is for bee pasturage, where the seed can be had, the time to sow it, and how to prepare the ground. RUFUS ROBINSON.
La Clede, Fayette Co., Ill., June 3d, 1878.

This is a specimen of *Trifolium stoloniferum*, or running buffalo clover. I receive either this or the other species of buffalo clover, once or twice a year from Ill. W. J. BEAL, Lansing, Michigan.

We have no acquaintance with this clover, and have no means of answering the questions concerning its honey value, &c. Can not some of our readers answer?

Enclosed, I send you the bloom and leaf of a plant growing in great abundance in our orchard. In the early part of the day, it is just humming with bees, which seem to gather pollen. Do you know the plant? If so, what is it? The two little blue petals fold up in the afternoon when the sun shines. It always has a fluid at the base of the flower, but it does not seem to be sweet. Do you suppose they gather honey from it, or only pollen? A SUBSCRIBER.
Farmington, Texas, June 11th, 1878.

The above named plant is the *Commelyna Virginiana*, a sort of spiderwort, of which there are several varieties. W. J. Beal. Lansing, Mich.

The bees probably gather honey from it.

GRAFTING QUEEN CELLS.

DAVIS' TRANSPOSITION PROCESS.

I HAVE just been experimenting on an idea taken from former journals, about grafting larvae into queen cells.

The process of grafting is very simple. Wait until the cell is nearly ready to be sealed, then with a broad tooth pick, remove the black larva, and from a frame of larvae just hatched from the egg, carefully remove one, and insert it into the royal jelly at the bottom of the cell.

The advantages of this method are several: 1st, you insure to the queen larva an abundance of food even in a nucleus; for, the cell being nearly completed, is, consequently, well stored with food, and the larva, being just hatched, will continue to be fed until old enough to be sealed. The cells are usually built out large and full: 2nd, any cell in the apiary can thus, with a few moment's work, be made to produce a fine Italian queen: 3d, there is a considerable saving of time when a black colony is left queenless, and you wish it to raise a queen for itself; instead of having to wait until all the black larvae is too old, then destroying the queen cells and giving Italian brood or eggs, we have only to wait until the cells are formed, then supercede the black larva with one from a choice stock, and "presto-change!" we have a fine Italian queen: 4th, it obviates the necessity of weakening choice stocks by the constant removal of frames of brood for queen rearing, as an inch square will furnish larvae for 40 or 50 cells. This larvae is to be taken as young as possible—*just hatched*. Then I don't think any one can object, as they are fed for the first three days on the same substance as the queen, only not so abundantly. The queens I have raised thus are very fine, large, and active. JOHN W. SLACK.
Plaquemine, La., June 7th, '78.

I quite agree with you, my friend; we have used the plan almost every season, and invariably get nice queens, even from cells raised from the most vicious hybrids. When you get a colony that will not accept any queen, and will tear down all the queen cells you can furnish them, there is a rare satisfaction in cheating them in this way, and making them rear a choice queen, while they fondly think they are having their own way. There is some danger, and that is that careless people might skip a cell, and thus hatch out a hybrid, or some inferior queen, and unwittingly sell her for a choice one. If you wait until the larvae are all too old to rear queens, then mark every cell after it has been grafted, on the top bar of the frame, right over it (I often lay a small pebble right over a choice cell, to distinguish it from others that may be in the hive) you cannot very well make a mistake in your queens.

Cash for Beeswax!

Will pay 30c per lb. for any quantity of nice clean wax delivered at our R. R. station.

A. I. ROOT, Medina, O.

QUEENS! QUEENS!

I have propagated and sold Italian queen bees for the past 10 years, and will supply a large number for 1878. Tested queen, $2.00; warranted, $1.50; unwarranted, $1.00. Safe arrival guaranteed.

Address Wm. HOLLAM, Kewaskum,
7-8d Washington Co., Wis.

JUST RECEIVED; CHOICE NEW CROP

Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ½ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.

A. I. ROOT, Medina, Ohio.

Tin for Separators and Extractors.

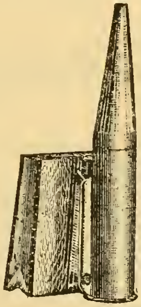
As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 00
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	8 50
" " per sheet	9

We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

SMOKE AND SMOKERS.



I am overwhelmed with letters asking "which size of smoker is the best?"

Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries*, and for *coarse fuel* they are the *best*.

The Standard is what its name implies, and constitutes the *bulk* of *sales* so far.

The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants; it is larger, however, than the improved Quinby,

The first "Direct Draft" smoker *ever sold* has been used one year, and sold for one dollar, as the gentleman wanted a *large* size.

It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price*."

They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco*, or *sulphur*.

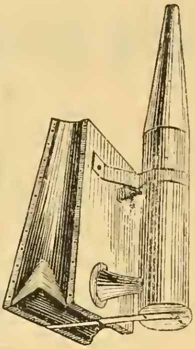
Directions sent with every smoker.

These smokers are a *necessity in modern bee culture*, and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per Express..	$1 75	Mail....	$2 00
Standard	" ...	1 50	"	1 60
Small,	" ..	90	"	1 00

Patented January, 1878. Manufactured *only* by the inventor, T. F. BINGHAM,
4tf Abronia, Allegan Co., Mich.

KING'S DIRECT DRAFT SMOKER,



Is giving unbounded satisfaction wherever used. It *economizes all* the wind and smoke, *burns all combustibles* and goes out ONLY *when* PUT OUT. It is the same size as "Bingham's standard," and is NEAT and DURABLE. Price, $1.00; by mail $1.25. Address,

A. J. KING & CO.,
6tf 61 Hudson St., N. Y.

250 COLONIES ITALIAN BEES FOR SALE.

I will sell 250 full colonies Italian bees in best movable comb hives at $4.00 each if all taken at once and where they stand, about 300 yards from steam boat landing on Mississippi river. All queens daughters of imported mothers.

WILLIAM H. WARE, Bayou Goula P. O.,
7-8d Iberville Parish, La.

FOUNDATION!

Order your fdn. of us and get our printed instructions for securing at least 25 per cent more honey in boxes or sections than can possibly be secured by the ordinary method. Reports at hand highly commend the plan.

5 to 10 lbs. 12x18 or 8x16¼, per lb	55
25 " " " "	53
50 " " " "	52

Shipped by freight or express.

J. OATMAN & SONS,
7-8d Dundee, Kane Co., Ill.

1878. FOR SALE! 1878.

Italian Queens.

Propagated in populous colonies, pure and prolific. Tested queen, $2.00. The same grade of queen so soon as fertilized and laying, $1.00. Also full and nucleus colonies. Orders filled promptly, and safe arrival guaranteed. *When wanted by mail, add 9c for postage.*

Address W. P. HENDERSON,
4-9inq Murfreesboro, Tenn.

STILLMAN & Co.
Engraving
ON WOOD
N.W. COR. FRONT & VINE
CINCINNATI OHIO.

Comb Foundation MachineS

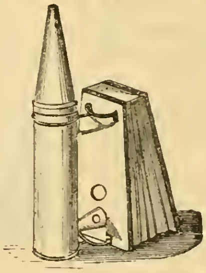
$35.00 TO $100.00.

SAMPLES OF FOUNDATION WITH OUR ONE POUND SECTION BOX BY MAIL FOR FIVE CENTS.

For illustrations see our Illustrated Catalogue of Apiarian Implements and Supplies, mailed on application.

A. I. ROOT, Medina, Ohio.

New Quinby Smokers!



The Smoker I am offering the present season, is entirely new in many respects, and is pronounced the best in market. In quality of material and manner of construction, it is as durable as can be made. It works as perfectly in every way, as any smoker now in use.

See what bee-keepers say of it.

"I have thoroughly tested the smoker. It works like a *charm*. Everything about it is perfect. They are made in a thorough and workmanlike manner. I consider it the best smoker in use."

Wenham, Mass., July 10, 1878. H. ALLEY.

"After selling a large number of your smokers we are gratified to know that they give general satisfaction. We keep all the prominent styles in stock, and whenever a visitor buys one he always selects the New Quinby in preference to any other."

Canajoharie, N. Y., July 17, 1878. J. H. NELLIS.

Sent on receipt of price.

2½ inch tube by mail	$1 75
2 " " "	1 50

By express 25 cents less.

Send for circular of General Supplies to

5-4 L. C. ROOT, Mohawk, N. Y.

1878. ITALIAN QUEENS. 1878.

Large, very handsome and prolific. Warranted $1.25; unwarranted $1.00; tested $2.00. No money required until purchaser receives his queens. Send for circular. Address H. ALLEY, Wenham, Mass.

SET OUT GRAPE VINES.

I will send free by mail the following vines at $3.00 per dozen.

Hartford Prolific, Rogers Number Two, Wilber, Croton, Massasoit, Maxatawney, Rulander, Goethe, Taylor, Catawba, Telegraph, Martha, 3 Year old Concords. 2 Year old Concords, $2.00 per doz. 1 Year old Concords, $1.50 per doz. 15 one of each kind for $5.00.

J. G. WARNER,
8-10d Clover Farm Vinyard, Butler, Mo.

FULL stocks of Italian bees with *natural* stores for winter use, after October first, from six to eight dollars each. Send for Circular.

O. H. TOWNSEND,
8 Hubbardston, Ionia Co., Mich.

Send **Ten Cents** for a Sample Copy of

The American Bee Journal

The Oldest, Largest and Best Bee Paper.

THOMAS G. NEWMAN & SON, CHICAGO.

ITALIAN BEES *and* **FANCY POULTRY.**

For Italian Bees, full colonies or queens, also Fancy Poultry, including the leading varieties of Land and Water Fowls, Address JNO. R. LANDES,

2-9 Albion, Ashland Co., Ohio.

STRONG 2 frame nuclei with queen reared from a choice imported mother for $2.50.

HIRAM ROOP, Carson City,
7-8 Montcalm Co., Mich.

EUREKA.

We are pleased to announce that we are now prepared to supply Comb Foundation made from pure yellow beeswax, that has wire incorporated in it. This is manufactured by an entirely new process, and we are able to make 6 sq. ft. to the lb. of Foundation containing the wire. By any other process, it has not been possible to make over 3 to 4 sq. ft. per lb. when wire was added. The necessity for putting wire into brood foundation, is becoming daily more apparent. Capt. Hetherington, C. C. Van Deusen, L. C. Root, and other prominent apiarists could not be induced to use foundation without the wire addition. It positively prevents all sagging, and the combs handle so much stronger that the difference in cost is of no account in the long run. Without the wire, by this new method we can make foundation for surplus comb honey that measures 10 sq. ft. to the lb., and the base of cells are *so thin* that the weight is nearly all in the side walls. No "fishbone" will ever be found in box honey made on this foundation.

We are able to supply this fdn. promptly, in any quantity, at following sizes and prices, viz: foundation containing wire—sheets cut 10x16, 10x18, 8½x16½ or 11¾x12—less than 50 lbs. 80c per lb., 50 lbs. and over, 75c per lb. If wanted in different sizes from those mentioned, add 10c per lb. to above prices. Sample sheets of either size, post paid, by mail 30c.

The thin yellow fdn. for surplus comb honey in sheets 8x16½ or 12x21 less than 50 lbs. 70c per lb. 50 lbs. and over, 65c per lb. The latter kind made from white wax, add 25c per lb. to price of yellow. Small samples of all three kinds by mail, 15c. We have issued a small circular telling how to use it, and describing it more fully.

For prices of old style fdn. and Italian queens, see July No. GLEANINGS. Shipping crates of all kinds made to order. The Hetherington crate a specialty, See my circular for prices.

Send P. O. money orders, payable to me, on New York City.

J. H. NELLIS,
8tf **Canajoharie, N. Y.**

QUEENS FOR SALE.

Since queens have been entirely excluded from the mails, I shall be unable to purchase any farther, for the present, but will furnish you from my own apiary, as follows:

Queens reared from imported mothers, as soon as they commence laying, each $1.00. These are to be taken just as they come, and no one is to be allowed to pick them over, under any circumstances. Tested queens of ordinary appearance, and ordinarily prolific, will be $2.00. If we select the largest, yellowest, most prolific, and that produce the finest bees, the price will be $3.00

For such as are small, dark, or old, but that produce nicely marked bees, the price will be $1.50. Hybrid queens when we have them, will be 50c.

All of the above, we guarantee safe at your express office, and that they are as represented, but can be responsible for them no farther. I do not know what the express charges will be, but, from what experience I have had, I fear it will be a grevious burden for us all. On this account, and because of the great number of losses that are being almost constantly incurred, especially by beginners, I would advise you to buy your queens in a nucleus. This does away with all trouble or risk of introducing, and you can build them up into fair colonies if purchased any time during this month. To make the burden as easy as possible, I will furnish a neatly painted 2 frame nucleus full of brood and bees, for $2.50; a 3 frame nucleus, $3.50. These prices are for nuclei, without queens, and you can have any kind of a queen you wish, by adding the prices as above given. A nucleus hive should stand a journey of a month or more.

☞ Wherever there are offices of the U. S., Am., Adams, or Union Express Co's, queens can be prepaid for 10 cts. Send us that amount in addition to the regular price, and, if we can not prepay for the whole distance, we will do so as far as we can.

A. I. ROOT, Medina, O.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required*.

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	“ “ waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete*; circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
3	Cages, wood and wire cloth, provisioned. See price list	10
30	“ “ “ per doz	1 00
20	Candy for bees, can be fed at any season, per lb.	15
0	Cards, queen registering, per doz	06
0	“ “ “ per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	“ “ without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	“ “ top only, per 100	1 00
15	“ “ bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $6 50 to 10 00	
	“ inside and gearing, including honey-gate	5 00
	“ Hoops to go around the top	50
	“ “ per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	“ The same, large size, double above prices.	
2	“ 3 cornered, for cross-cut saws. 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 25
0	GLEANINGS, Vol's I and II, each	75
0	“ Vol's IV and V, each	1 00
0	“ Vol. III, second-hand	2 00
0	“ first five neatly bound in one	6 00
0	“ “ “ unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	“ “ ½ doz	5 25
	“ “ ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	50
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	“ “ Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0 0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester	8 50
0	Queens, 25c to $6 00. See price list	
1	Rabbets, Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb.	25
18	“ Catnip, good seed, per oz. 20c; per lb.	2 00
0	“ Chinese Mustard, per oz	15
18	“ Mellilot, or Sweet Clover, per lb	60
18	“ White Dutch Clover, per lb	35
	“ Motherwort, per oz. 20c; per lb	2 00
18	“ Mignonette, per lb. (25c per oz)	1 75
	“ Simpson Honey Plant, per package	05
	“ “ “ “ per oz	50
18	“ Silver Hull Buckwheat, per lb	10
	“ “ “ “ peck, by Express	75
	“ Common “ per peck	50
18	“ Summer Rape. Sow in June and “ July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
1	Slate tablets to hang on hives	01
	Smoker, Quinby's (to Canada 15c extra)	1 50 & 1 75
5	“ Doolittle's, to be held in the mouth	25
	“ Bingham's $1 00; 1 60;	2 00
25	“ OUR OWN, see illustration in price “ list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for. Grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of vail, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	12
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees 14 mesh to the inch, per square foot	06

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
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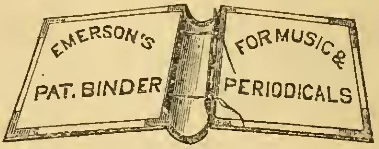

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GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. SEPT. 1, 1878. No. 9.

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Publisher and Proprietor,
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MY EXPERIENCE. NO. 9.

FALL MANAGEMENT.

DURING September, I gave the queens plenty of room to lay.

Oct. 22d. I removed the 3 lightest frames from each hive. The remaining 6 frames were placed in the centre of the hive, and chaff cushions put on each side of them. The light frames that were taken out were placed in the cap and the bees allowed to carry down the honey.

Nov. 3d. The average weight (of 6 frames and the bees) per colony, was 18½ lbs.

I think, if I had left but 4 frames in a hive and let the bees put all the honey into them it would have been better.

I think my swarms were rather light, both in bees and stores; and, if we had had a cold winter and spring, I should have lost some of them; as it was, however, they all came through in fine condition. I never saw bees in the spring, look drier, brighter, or cleaner.

Nov. 8th. I made boxes 3 inches deep, without tops or bottoms, tacked some coarse sacking on the bottoms, filled them with chaff, and set them on top of the frames.

PACKING BEES IN STRAW.

Nov. 22d. The hives were left on their summer stands, and straw was packed around them, a foot thick. A tube, made of boards, was placed in front of each hive to allow them to fly. These tubes were packed full of straw, and when it was warm enough for the bees to fly the straw was removed.

I do not think I shall ever pack my bees again in straw; it is quite a job to pack them, and your apiary looks untidy all winter; if there comes a warm day and you wish to examine your bees, you have to take the cover off and pull out the straw; then you have to take the packing away in the spring, and "clean up" afterwards. Well, "just you try it." If I have any bees to "pack" this fall, I shall manage to have 5 or 6 *full* frames of honey for each swarm, place them crosswise of the hive, put chaff cushions on all four sides of them and one on top, and each hive shall be "just crammed full" of bees, if I have to unite half a dozen swarms into one.

Now Novice, to be candid about it, don't you think that is about the way you would prepare your bees for wintering, in the Simplicity hive, if it could be done, even if it did "require considerable time and fussing?"

LOSING QUEENS IN THE SPRING.

Feb. 28th. I examined my bees; they all had queens, and the strongest swarms had considerable brood, and had used the most honey, the weakest had but little brood, and had not used much honey. I gave the strong swarms some honey from the weak ones.

When I made this examination, hive No. 12 had a fine lot of brood. I did not open this hive again until March 29th, when I found no queen, but found queen cells sealed over. I destroyed the queen cells and united the bees with the weakest swarm I had. As my queens were all dollar queens, purchased the preceding autumn, and *supposed* to be *young*, I did not know why things should have "acted so." Perhaps Novice can explain.

Rogersville, Mich. W. Z. HUTCHINSON.

Your plan of turning the frames half way around, and placing cushions on all the 4 sides, is one that has been adopted a great many times, but I believe all vote, sooner or later, that it is too much trouble. When the bees are cross, as they generally are in the fall, and the frames covered with propolis, it is quite a disagreeable task. Besides, the four cushions do not make a covering as impervious to frost, as a single body of chaff extending all around the brood cluster, and isolating it, as in the chaff hive; and this latter is always prepared for winter, by simply putting the thick chaff cushion in the upper story.

I would suggest that you killed the queen or dropped her out of the hive, when you made your examination Feb. 28th, but this could not be the case if you found sealed queen cells, just 31 days afterward, so we shall have to suppose that she died of her own accord. It is very rare for a queen to die in this way, when she has a fine lot of brood, such as you say you found. When a queen begins to fail, she generally produces but a small amount of brood.

QUEEN'S VOICES, &c.

I HEREWITH send you 18 dollar (now 90c) queens. I hope they will reach you safe and prove satisfactory. In getting up the cages, I copy from you and Nellis; mine are not exactly like either yours or his. You may receive them more neatly put up, but no better queens. Please give me credit, and I will tell you when to remit.

I have been puffing your smoker this A. M.; it looks awkward, like a Sibley tent out of plumb, on the side of a hill, but works well.

W. P. HENDERSON.

Murfreesboro, Tenn., June 10th, '78.

I think you are right, friend H., and while we are about it, I wish to mention one peculiarity of your queens. When a number of queens are tied up in one package, they often get into a habit of teeting, or calling to each other, as has been mentioned on another page. As their voices are all different, it is amusing in the extreme, to hear them call—first, one with a shrill high key, then one a little lower, and finally one with a deep bass compared with the rest. Well, the clerks had frequently remarked these faint calls, but, when the first lot came from friend H., we were all astonished to hear them call out as if they were of as much importance as anyone. One among the lot called so loud, that she could be heard distinctly at the farther end of our large work room. Strange to tell, the Henderson queens have always been celebrated for their voices; and just before the P. O. department closed on them, they were beginning, as it seemed to me, to call daily in a plaintive way, to be allowed to get out, although I had no place in the world to put them then. As the days passed on, it seemed to me that their little voices were growing weaker and weaker, and, just before the bottle cage came to light, they had almost ceased to remind one, of their narrow prison, where they lay dying (they *did not* die though), and all for the want of just one drop of water, which I, in my ignorance, had failed to supply them. I do not know where this talkative queen went, but presume some of you have her. Who knows but that the day may not be far distant, when talking queens may be as much a thing of reality, as the talking phonograph? Queens may often be heard teeting, when at work in their hives. After you have once heard the sound you will readily recognize it always afterward. The word teeting scarcely expresses it; it is rather more like "zeep," "zeep," "zeep." I do not know why friend H. should have the most talkative queens, unless they are stronger and more robust. Perhops he raises them all from a single mother, and this mother has astonishing powers of voice. While the sound is being produced, a peculiar tremulous motion of the wings and body is observed, something similar to that of locusts and katy-dids; will some of our entomological friends tell us more about this?

SOME VALUABLE HINTS FROM AN OLD SUBSCRIBER.

DEAR GLEANINGS:—In looking over your pages, I observe on page 181 Sheperd's method of swarming. Has he seen Quinby's method represented on page 158 of "Mysteries of Bee-Keeping?" I think Quinby's very good. Friend S's style of having a place for everything and everything in place should be adopted by all.

"A woman's opinion of R. R. and express Co's doings," I fully endorse; you will also find Orange Judd's opinion in the *Am. Agriculturist* for 1868, page 6, and Ch. Dadant's in the *A. B. J.* I could tell a few hard stories myself, but no matter for that.

Friend Haines' bee-feeder seems something like my own, which I have used with much satisfaction for the last two seasons. Two pieces of ½ in. board are tacked together and a hole bored through, just large enough for a tight fit for the neck of the jar with a cloth over it. Now take the pieces apart, and nail them together again, with a piece of wire cloth between them, and you will have a feeder at once portable and efficient. The two pieces of pine should have the grain cross each other and an entrance cut out of the lower one. Place it on the bottom board outside, with the entrance "looking" into the hive, or close to the division board, in same way, inside of hive. Some of my small stocks sucked a pint jar empty in 10 hours last spring, showing efficiency in both the feeder and the fed.

In all your engravings, we have never seen a lamp nursery in full blast. Can we have one some time?

I should like to see a cheap and efficient guide for grinding plane irons, chisels, &c. There are such tools in market, but such as I have seen are quite heavy and expensive. Something made of hard wood and well soaked in oil is wanted.

I often think that hives "in the flat," to be put together with a dovetail running from top to bottom, would be a handy arrangement. If you will get a 6 lb. box of Kingsford's starch, it will give you the idea complete. The worst feature about it might be doing away with those iron hoops for putting hives together, but then you could charge a little more for the hive. It makes the neatest box *I ever saw.*

I have been using a Bingham smoker lately, and liked it very well; but, finding the need of a spark arrester, I put a piece of fine wire cloth over the nozzle and drove an open-top thimble over it, to hold it on, and am perfectly suited with it. I burn very rotten wood, which throws sparks sometimes. A damper would be handy.

In making wide frames for sections, I put the top bar on with small brass butt hinges (made here by the ton). This allows the top bar to be raised at one end, and shut firmly down on the sections, keeping them firmly in place, and allowing them to be easily taken out in the same way. A loop at one end might be handy. WM. H. KIRK.

Waterbury, Conn., July 29th, 1878.

The light box has some advantages over the bag that Quinby figures, for the bees seem to take to it almost instinctively, crawling into the holes as if they thought it was a home made on purpose for them.

I presume many of us have had our patience tried with the Express Co's. There is one point I would emphasize. Before you send a package, inquire what the expense will be; if too much, don't send it. Almost any express agent can tell you before hand what the charge will be for a given amount, to a given place, and if this price is more than we can afford, can we not decline paying it in a pleasant way? We do not dictate in other kinds of business what the prices shall be; and very few people know all the circumstances that make up the charges. As we have now an express clerk of our own, we know better how it is. If charges have been more than seem to be right, let us know, and we will explain, or have it rectified. The Express Co's cannot carry as cheaply as the mails, for they are responsible for loss or injury to an article, while the P. O. department is not.

We are just now at work on the feasibility of making hives, as starch boxes are made, without nails. My ambition is to have them made up, seasoned, and painted, and at the same old prices we have been selling them for this summer. It will require very expensive machinery, and great accuracy, to dispense with the iron hoops, but I think it may be done. If we then succeed in getting a low rate of freight to all parts of the country, it will be a blessing all around.

We have used spark arresters on our smokers, but they are so quickly filled with soot, that we have long ago discarded them. Yours being on the outside, however, may work better. Many have written about having the top bar to the broad frame removable, but we have never found any necessity for it at all. The sections come out very easily, when you once get the hang of them, after the frame is lifted out of the hive.

HOW TO RAISE QUEENS FOR MARKET.

BY E. M. HAYHURST, KANSAS CITY, MO.

I DO not hope to say any thing in regard to queen raising, that will be new to your old readers, as the subject has been so thoroughly treated in back numbers of GLEANINGS; but for the benefit of beginners, I will give you my method.

For nuclei, I use a hive similar to the Simplicity; that is, a plain box, made the same size as the Langstroth hive, with movable cover and bottom board, and one division board made the same size as the frame, so as to be entirely movable. On each hive I have the registering card described in your circular, by means of which I can tell, at a glance, the probable condition of the hive, without the necessity of opening it. I use the full sized hive, because it costs but little more than the two frame hive, and can be used for full stocks or nuclei, as may be most convenient; and, when not in use in the yard, it is very convenient in the honey house, for storing surplus combs. By sliding the division board back, I have immediate control of the combs, and can get at the queen very quickly; while, in the two frame hive, it requires some time and care to get the combs out without injury, and, if the hive should happen to contain cross hybrids, so as to necessitate the use of smoke, she is sure to run down on the bottom, where it is very difficult to get at her, in the narrow hive.

To stock the nuclei, I take, from a full colony, a comb containing hatching bees and plenty of stores, which I place in one side of the hive, with the division board close to the frame. I also give them enough young bees from other combs to make them sufficiently strong. When they require more room I give them an empty comb; and, in a short time, during the honey season, I can build them up into good stocks, if it is desirable to do so.

I have most of the queen cells built in full colonies, as I generally get the largest number of perfect queens in this manner; although some of the finest queens sent out by me, this year, were from cells built in strong nuclei. What seems to be required, is to have the cell building colony in as nearly a normal condition as possible, not necessarily very populous. Some bees naturally build more cells than others. By forming strong nucleus hives from these, and keeping up the normal condition, by occasionally giving them hatching bees from the same old stock, we could probably get more cells, with less expense, than in any other way.

To have a colony build queen cells, I first remove the old queen; in 8 days, I pick out all the cells that have been built, and place in the centre of the hive a comb containing larvæ not over one day old, from the queen I breed from. These I obtain by placing an empty comb in the centre of her brood nest, about four days before it is needed. For this purpose I use *light colored* combs. Bees seem to prefer to build their queen cells on the edges of the combs; on this account, I cut a few slits about one-half inch wide in the comb, before placing it in the cell building colony. In about eight days, this comb is ready to take out and put in the nursery, and be replaced by another similar one. I can generally get four or five good lots of cells from a hive, before the youngest bees are too old to raise perfect queens.

My nursery is made according to the description in your circular, and is a very great convenience; in fact I could not raise queens, at present prices, without it. When a queen is hatched in the nursery, I can tell at a glance, whether she is perfect: while, if the cell were in a nucleus, I would have to spend some time in looking for her, and might have to open the hive several times before I would find her hatched. It is usually 8 or 10 days after a queen is hatched, before she begins to lay; therefore, it is quite important to know immediately that she is perfect, so as to save this time, if she is not. The nursery also saves, to the bees, the time required to hatch the cells, after they are sealed; say five or six days for each cell.

The time required in introducing is but little, if any, more than is necessary to cut out the cells, and place them in the different hives; and this season the loss has been no greater.

I examine the combs in the nursery every two or three hours, to find the young queens; and, before leaving it for the night, I hunt up what queens are likely to hatch before morning, and cut out the cells containing them, and put them in cages. Here is where the light colored combs show their advantage; by holding them up to the light, the queens that are nearly developed, can be seen to move slightly, and are pretty sure to come out in either 6 or 8 hours. If they should have the run of the combs an hour or two, they would be pretty certain to murder some of their sisters.

I introduce the young queens to their nucleus hives, as soon as possible after they are hatched, when the honey harvest is good; this usually requires but a moment. I let them run in at the top of the hive, giving them and the bees a good smoking, and feel quite safe about them. But if the bees are not getting much honey, and are inclined to be cross, it requires more care. I move the division board back, so as to give a good view of the comb, then let the queen run in among the bees, giving them all a good smoking, and watching them a few moments, until they become quiet. If they treat her respectfully, she is pretty sure to be safe; but, if any attack her, I smoke them again. They seldom require this the third time. With care, and by taking sufficient time (and a good queen is worth it), I lose very few; although, there are times, when the utmost care results in failure. There seem to be climatic influences, at times, that control the matter, and which are beyond my knowledge. For instance, during the clover season, I lost nearly all of one fine batch of queens, while a similar lot, introduced in the same manner a few days previous, were well received; and I have had but little trouble since. It seems that feeble hives are more inclined to receive queens peaceably, and, on that account, I keep my nuclei as weak as possible and still have them self-sustaining. I also have better success in introducing to hives that have been queenless several days, and have cells well started.

I have, this year, abandoned the plan of having the hives arranged in straight rows, and at regular distances, and now have them grouped about various small trees. This arrangement is not so pleasing to the mechanical eye, but it seems to suit the young queens much better than the former arrangement, and I lose scarcely any now during their marriage flight.

For shipping purposes; I use the "Five cent candy cage," having the candy fresh. I find that queens, and most of the bees, will live in these small cages from 12 to 15 days, if the candy is just right. In provisioning the cages I make the candy according to your directions in GLEANINGS, Vol. V, page 214, putting in more candy than the bees would be likely to use, because a greater bulk together will retain the moisture longer.

To fill the cages for shipment, I take a strip of them containing enough for the day's orders, and remove the slide that closes the openings. I pick up all the bees, including the queens by the wing, putting into the first cage the first queen and her *suite* composed of 6 or 8 bees in the prime of life, which are easily distinguished by their clean, bright appearance. These work the candy better than very young bees, and are more likely to stand the confinement than old ones. After putting in each bee, I close the opening with my thumb, until they are all in, when I use the slide for this purpose. I then fill the second one in the same manner, and so on through the whole strip, which is then cut into pieces to suit each customer.

Most of the queens sent out by me this season have gone by express, and with such entire satisfaction to all parties, that I can hardly regret that we have been so completely shut out of the mails. I write the address plainly, on the back of the cage, using no wrapper; thus the bees can have the full benefit of all the air they can get through the wire cloth, and, being handled more carefully, are received by the purchaser in excellent condition, ready for immediate introduction. We can, with perfect safety, guarantee safe arrival, as we have the means of knowing certainly whether they were delivered to the party that should have them, thus shutting the door against possible fraud. Now, if we can only make the express companys realize that it is to their interest to give us low rates, I think that the arbitrary "rulings" of the P. O. department, can do us but little harm.

I heartily concur, friend Hayhurst, in all that you say, and feel sure that queens reared in the way you describe, will be equal to any. I would suggest that you might save valuable time, by a little different course, in getting colonies or nuclei for raising queen cells. Instead of waiting 8 days and then picking off all queen cells, I would remove all combs containing larvæ and insert the comb or combs for the cells at once. Letting a strong colony rear a lot of cells only to be thrown away, is rather too expensive, is it not? Especially, as these cells might almost as well have been good ones.

BOX HIVE QUERIES, &c.

WHAT course would you pursue to strengthen a weak colony of bees in a box hive, from your neighbor's bees in the same kind of hive? They hang out in large clusters. At what hour of the day would you advise one to do the work?

Giving them more bees in any way that I know of, in a box hive, will be rather risky business for the queen. Perhaps the best way would be to go just at evening, and, after smoking, brush off the bees that are hanging outside, and exchange places with the hives. The bees that were outside will then be compelled to accept the weaker hive, and, if you keep them well smoked, they will usually unite peaceably.

Can I transfer my bees from box hives to movable frame hives as late as September with success?

Yes, if you are thorough enough. See transferring in April No.

Enclosed find a bee which I found the other bees dragging out of the hive. What ails its legs? are the particles clinging so tenaciously to the hairs of its legs sporules which accidentally got there while in the act of gathering stores from certain plants or flowers? If so, from what plant did it receive them? or is it due to a vegetative disease of the bee?

It is the pollen from the milkweed, illustrated in another column.

My friend, M. J. Link, has several colonies of bees upon a stand, very close together; No. 1 is in a Harbison hive, No. 2 in a Simplicity hive, and No. 3 in a Harbison hive. No. 2 appeared to be very uneasy for 48 hours; No. 3 appeared to have more bees than is due to it, hanging out in a large cluster; it was also somewhat uneasy. The bees seemed to pass to and from hive No. 2. He kindly sent a messenger to me to come and see his bees. I immediately responded, and found the bees in hives No. 2 and No. 3 very uneasy, running all over the hives, and many flying in the air, as in the act of swarming. I also found a handful hanging to a limb of a tree; I took them down, laid them upon a cloth and found the queen, clipped her wing, and put her in hive No. 2. For one and a half hours after, they were still uneasy and not reconciled. Two hours after, the queen was found down on the ground, with a few bees. She was again introduced into hive No. 2. The bees in hive No. 1 were quiet all the while; 36 hours after the queen was introduced the second time, it seems that peace is again restored. However, hive No. 3 appears to have more bees than duly belongs to it. Now, what was wrong with the bees? Did we do right or wrong?

DR. H. J. PETERS.

Ragersville, O., Aug. 5th, 1878.

The "wrong" is in having the hives so close that the bees can pass from one to the other, and whoever keeps bees in that way will have more problems to solve than all you have mentioned. The bees from stronger hives will imprison or kill a queen, and other queens will very likely be raised, to be served in the same way; perhaps it was these young queens, one or more of them, that occasioned the commotion of which you speak. Give every colony a separate stand, and have it so that you can walk all around it; I would not have them less than 6 feet apart, from centre to centre. You did neither harm nor good; but if you had moved the hives away from each other, you would have hit the mark.

INTRODUCING, FREAKS OF BEES, &c.

I HAVE succeeded in introducing my first queen. The cage in which she was confined was in the form of a cylinder, closed with a disk of wood at one end, and a piece of comb at the other. After removing the old queen, the cage was suspended between two combs containing brood and honey, the latter in reach of the queen. This was on Thursday. On Saturday morning, I opened the hive and made an entrance to the cage, through the plug of honey comb, sufficient to allow the queen and her attendants to escape. I examined them again about two hours after, and found the queen still in the cage, and also some *black* bees. I thought she might be all right, and, as it rained all the afternoon, did not have an opportunity to see her again until Monday morning. I did not open the hive Sunday, concluding that she had been already either accepted or destroyed. On looking Monday morning, I found *ten dead, black bees, one live Italian, and the queen*, still alive, but feeble, in the cage, the whole being sealed up securely, and a large piece of comb suspended from the cage, even the meshes of wire, some of them, filled with wax. I smoked both bees and queen, and let her run down among the combs. I have not seen her since, although I have opened the hive a number of times; but I know she is there, for nearly half the bees are now Italians, and there is a plenty of eggs and larvæ. Why did they seal her up, after allowing a portion of their number to enter the cage? and why was she accepted after having been used in so un-bee-coming a manner?

In an article on fdn., you say the fdn. may be colored so as to show if anything else is used in building out the comb; please tell us how we shall do it. What shall we use for coloring matter that is not poisonous, and that will be relished by the bees?

Royalston, Mass. C. H. GOODELL.

The bees did not seal up the queen because they had any ill will toward her, but simply as an accident; perhaps some of the young bees did it, simply because they wanted something to do. It is not safe to confine a queen, even while being introduced, without food and water. Had you not examined yours just as you did, she would have been starved as were the bees. The wire cloth was waxed over, because it was a foreign matter that they had no other way of getting rid of.

You can color wax with indigo, but different colors of the natural wax, will often enable you to decide in what manner the wax is drawn out, and made use of.

HOW TO KEEP EXTRA QUEENS ALMOST ANY LENGTH OF TIME.

ALSO, HOW TO GET OUT OF TROUBLES OF ANY KIND.

ABOUT the time queens were thrown out of the mails, I was really in trouble. Not for myself alone, but on account of the many that were sending me queens, and who were, perhaps, less able to stand the loss than myself. As soon as the order was received, we despatched postals to everybody who had been sending us queens, but for all that they kept coming; day after day, had I said, "Well, I really can not think we shall have any more, so keep up your courage, boys, and keep on dividing and making room for them." We did so, but more kept coming. Hayhurst had just sent us a package of 25 or 30; Henderson had sent as many more; then Moore, of Atlanta, Ga., came in with a fine lot; and, besides the above by express, a lot of the A B C class were just getting the hang of the business, and they swarmed in at every mail, with their queer cages, but nice bright queens, until I almost began to be sorry I had ever taught them how to raise queens. Some of those that had been notified, kept sending them in, saying they had nice queen cells just hatching, and they must put the queens somewhere, and they thought I certainly could get along with just a *few* more.

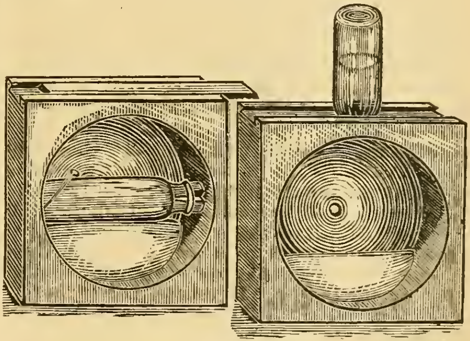
One evening toward the first of August, our friend Charlie came in with another great bundle of queen cages, and, as I thought of the queens spread all around in the honey house with every thing that we could think of given them, just to make them hold on to life a little longer, I am afraid I got into one of my ugly moods. It is nothing very strange, for I do have such moods, and am afraid I always shall, now and then. Said a bad "impulse",

"Of course that fellow had received your postal card, and knew better than to send you those queens. I would send 'em right back, and let him bear the expense, to see how he likes it."

But a better impulse said, "Steady, my boy; you are perhaps better able to take the shock of this event than many of your pupils, and you have no right to assume that they had received your notice. You have often said calamities were sent on purpose to teach us useful lessons. Had you not better brighten up and grasp the situation squarely, and see what the lesson is that is to be learned?"

As I mused, I got into a better mood, and went up stairs around into the wax room. The hands were all gone for the night, and it was still and quiet. I remembered how Mueller had asked God for everything he needed for his work among the people, and it occurred to me, that it could not be a wrong act to kneel down there, and ask my Heavenly Father to help me to be a better friend to those who entrusted their queens to me, and to ask him to tell me what to do with them, not only for my sake, but for the sake of all these bee friends all over the land. I did so, and after that I never borrowed any more trouble, as to what I should do with the queens. I did not know at once what was to be done, but I felt as if some "old hand" was going to tell me just what to do, and so I looked cheerful.

I suppose I began to give the matter earnest study, but it seems as if some one talked to me, something as follows: The queen and bees, to stand long confinement in small quarters, must have clean, pure, fresh food. The honey that is used to soak the sponges often acquires a musty or sour smell during warm weather, and the bodies of the bees that come the longest journeys are often much distended, especially, after they begin to die badly. The candy made with flour answers nicely when first made, but, after it gets dry and hard, the bees have nothing wherewith to moisten it, and so they die, as you have so often seen. Cages prepared with fresh candy every day you send out bees might do, but this would be well nigh impracticable; for the cages could not well be used again, and those kept in stock or sold would endanger the lives of the queens, unless they were used at once. Honey mixed with the candy, although it answers well for short voyages, will never do for California and Texas, and the bees fed with it often have distended bodies, even when sent but short distances. Hayhurst's queens seem brightest and most natural, and his cages are probably filled a few at a time, and just before they are sent off. The experiments made with coffee or loaf sugar, years ago when the dysentery prevailed, seemed to indicate that it is a sure remedy for the distended bodies, and that, as a diet, it is more wholesome than honey. How shall we keep the candy from getting dry? Wetting it, just before being sent out, often daubs the bees, and answers for but a short time, even then. Putting in a sponge filled with water does better, but that will get dry and hard, even while coming from the Southern states, to say nothing of crossing the great dry deserts on the way to California. Some plan to enable the bees themselves to mix the sugar and water daily, just as they need it, is what is wanted; can this be done? My mind wandered on a glass honey comb; but the motion of the cars would shake the water all out. I thought of a large glass bead, with the water held in by capillary attraction; and, finally, I went into the drug store and asked for some very small vials. They were out of half dram, but had dram vials. I thought these too large, but finally took some, and soon had one filled with water with a groove cut in one side of the cork, that would just let a bee get his tongue in. It was placed over a 10c candy cage, as shown in the right hand cut below.



THE "BOTTLE" QUEEN CAGE.

As soon as I got it nicely fixed, a friend sent three hybrids by mail. Although they had had a long journey, and one bee was dead already, they were given a bottle each and placed back of the type writer. They found the orifice in the cork, almost at once, and were very soon scampering about in the cage as lively as could be. They have been now caged in the same way, 10 days, and are as brisk and lively as one could desire. After it was settled that water and candy was all they needed (and I was surprised to find that a dozen bees would consume a dram of water in about 10 days), the problem was how to fasten the bottle in the cage for shipment, so that it could never shake loose, and yet so that it could be taken out to be filled. Our friend, Will, who handles the queens, solved this problem, by pushing a pin through the end of the cage, and through the cork of the bottle, as seen in the cut at the left. The cage is represented with the wire cloth removed, to show the position of the bottle. The other end of the bottle is fastened by a pin set over it. As soon as it seemed to be a success, all of the queens, both blacks and hybrids, of which we have a great quantity that have been shipped and stopped because no one will pay the express charges on them, were supplied with bottles of water, and not one has died since, where they had any kind of a chance. They have been sent out daily, by express, sometimes as many as 20 or more a day, but not one failure has yet been reported. In one of the larger cages, where the bees have been caged over a week, the bees clustered precisely as in comb building; their bodies are small and natural, and yet they have consumed quite a large quantity of candy or sugar, and have had no fly at all. I think it quite likely that the small quantity of flour (1-10) contained in the candy, supplies a very important element in the experiment. We are now testing the matter by trying to see if bees will not raise brood and thrive in confinement with only these three elements; water, sugar, and flour. If so, we are no longer at the mercy of luck and chance, with valuable stock, even if they have got run down so as to be weak in numbers.

Many of you have lost queens while caged and lying on the frames; sometimes, it was hard to explain why they died. We now introduce all our queens in these bottle cages, and have not yet lost one in them. One imported queen was lost, but, when examined, it was found a cage had been used, by mistake, without any bottle in it. For sending bees across the ocean, I would use cages with two bottles in them, placed with their mouths in opposite directions. If the cage should stand on end, so that the water was not near the mouth in one of the bottles, the other one would be just right. It makes me shiver, to think of the poor bees that I have probably consigned to death by thirst, during these long summer days, simply because I knew no better. Hereafter the little fellows shall have all the water they wish, and if my invention should be of any use to the bee friends of our land, give God the praise, for it was given me in answer to prayer. A brisk trade is now starting up by express, and I shall probably soon want all the queens you can raise, if it be really true that we are to have no more losses in handling these wonderful little friends of ours.

Aug. 8.—The three hybrid queens have now been in the bottle cages 11 days, and are as lively as at first. To be sure that they had nothing but candy and water, I wrote to the friend who sent them, asking how he made the candy. This is his reply.

The way I make my candy is this. I put coffee A sugar in a new tin cup, and add water until, by mixing or stirring it with a paddle, every particle is wet. I then set it over a stove and heat until every particle of the sugar is dissolved. (I put no flour in it at all.) When it is thoroughly melted or dissolved, remove from the stove and keep stirring it, until it begins to cool or grain, then put it in the cages.

M. G. Keeney.

Quercus Grove, Ind., Aug 6th, 1878.

Aug. 12*th.*—It is now over 3 weeks since the hybrid queens were imprisoned on the water and candy, and still they are alive and brisk; a few of the bees have died, but this length of time would suffice for a journey to Cal., and almost across the ocean. As the bees in one of the cages seemed disposed to cluster as bees do in building comb, I have had a cage made of one of our section boxes, and supplied with sugar and a bottle of water in the same way. About 200 bees were put in, and the miniature hive stands beside my type writer. Somewhat to my surprise, they commenced comb building at once, and show no signs of wanting to get out. Perhaps we may get out an observatory hive, for a parlor ornament, to allow the bees to fly or not to fly, as we choose. Instead of glass, which is generally used, I would have the sides of a coarse mesh, painted wire cloth. This seems to annoy them so little that they do not act as if confined.

SOME QUESTIONS FROM A LADY.

I AM one of your A B C class, and wish to ask a few questions. Will it pay to increase my stock by saving bees that are to be smothered with brimstone, by old style bee-keepers, this fall, and then feed them all winter? Would they be likely to build out fdn. for brood nest so late in the fall?

If you want bees, it will be the cheapest way you can get them, but you must be thorough in your work, and not stop when it is half done. You can get beautiful combs built out on the fdn., but you must feed so regularly, that it will come like natural stores. If you could buy their combs with them, by paying for what honey the owner would get by the brimstoning plan, it would be your safest way. Feed at night so as to avoid robbing, and give them about a lb. per day, until they are in good winter trim.

If I should purchase a nucleus with queen, could I Italianize my stocks from it next spring? Can you give me any idea what the expressage might be?

First build your nucleus up to a strong colony, that it may safely winter over, and then you can Italianize without any trouble. You can rear queens from the nucleus yet this fall, if you choose, but it is rather risky work for a beginner so late. Do not undertake it unless you have drones flying. The express to you would be $1.40 on a nucleus.

I cannot refrain from telling you my success with my *one* stock of bees which I transferred April 18th. Every cold, wet day in May, I fed them, which I think now was just right, for they kept filling the hive with young bees. I put on section boxes June 15th, and July 25th, I took off 40, the remaining 16 not being perfectly filled. Honey in such a shape was never seen here, and it was nearly all sold in less than a week at 25c per lb., and much admired by every one.

I think I have a better plan for fastening fdn. in sections than R. L. Joiner. I solder it in the groove, with a feather dipped in hot wax. The wax is melted in a shallow tin, over a lamp turned just high enough to keep the wax hot. Set the lamp on the floor between two chairs, let the tin plate rest on the edge of chair seats, and, with the fdn. cut in suitable pieces and sections on the table before you, the work is easy enough. Mrs. J. M. Squire.

Redding, Ct.

I am very glad to hear of your success. Your plan for fastening in the fdn. is essentially the same as the one given in our price list, except that you substitute the chairs for the box and wire cloth. One who has such ingenuity for improvising implements will be pretty sure to succeed with the bees.

FERTILIZATION OF QUEENS.

THE MISSING LINK ALMOST SUPPLIED ENTIRE.

A BRIEF notice of the following was sent a few days ago by one of the A B C class, and I wrote at once for full and complete particulars, which our friend supplies.

I had no queen to give to a queenless swarm, so I let them rear one themselves; in a few days they had about 10 or 11 queen cells. On July 29th, I gave my bees, or the most of them, a general overhauling, as I usually do about once a week, if I can possibly get time. Well, that day, I noticed the cells were all hatched or destroyed, but saw nothing of a queen; I did not look at all *close* however. I noticed no eggs, and knowing that the queen had not had time enough to be fertilized, I closed the hive. I then watched my hive very closely. The next day at noon, I noticed the bees of this hive lying out in great numbers. I told my wife to notice them for fear they might swarm; but I thought at the time that the queen was out on her trip. I quit work a little earlier than usual at the office, and went home. The bees of this hive were still lying out. I then went to hoeing in the garden, just opposite this hive, about 2 rods away. After hoeing awhile, I rested myself upon the hoe handle, and on turning around to the left, about half way, I noticed two bees; my first thought was "they are fighting," as they seemed to be in a fighting attitude; but, in an instant, I could distinguish the queen, then the drone seemed to drop over or backwards and be dragged by the queen. I was about 5 or 6 feet, perhaps not more than 4 feet, away. It seemed to me that the drone made an effort to catch hold of leaves and stems of marigold they were crawling upon. I also noticed that the queen stopped and bent over, with her head under like; but this only lasted a moment; the queen started with the drone again, when the drone seemed to catch between the leaves which checked the queen, yet the check was only just noticeable when I saw the queen getting further from the drone, about ¼ or ½ inch; then she flew, but seemed to come in contact with something and fell; she instantly rose however and made straight to the hive. No sooner had she entered than all the bees, except a few, followed her. When she separated from the drone, she drew a white substance from him, which, as near as I could see, was close to the queen, rather thick, about the thickness of the body of the queen, and then it gradually tapered down to a fine thread or nearly so, being about ½ inch long. I could see it very plainly in the air, when the queen was going toward the hive. Now, all this did not take half the time it takes to tell it. When I first saw the queen, I started to catch them, but rather checked myself for fear I would lose them out of sight, but then I thought I *must* catch them. I jumped, but too late; the queen flew. As soon as I saw she had entered her hive, I went back to look for poor drone. I found him lying on the ground with his bowels almost all gone. I then went to the hive to open and find the queen, but I guess the bees thought I had no business there just then; I had to leave them. I then went back to the place of meeting, thinking what a dunce I was for not catching the couple before they had a chance to get away; you know, "After the cow is stolen, we always lock the stable." O. L. ROSEMAN.

Montezuma, Iowa, Aug. 5th, 1878.

From this it seems quite probable, that the queen and drone both fall to the ground, as bumble bees do (see page 74, Mar. No.), and that our friend found them, just at this point. The queen had probably whirled about, until nearly free from the drone, and as she crawled up the stalk of marigold, he was torn entirely from her. Many of us have seen queens coming home with the white thread like string hanging to them, which friend R. mentions. Such facts are very valuable. Thank you, friend R., for giving us the facts so promptly.

Since above was set up, a neighbor, Mr. Giles Davis, of Liverpool, Ohio, furnishes the following, as a sequel to the article. He was standing in front of a box hive of black bees, during the height of the swarming season, while drones and bees filled the air in great abundance, when a queen came out of the hive, and was struck by a drone, when only a few feet from the entrance of the hive. Both remained together, and fell towards the ground, but finally, rose again and went off out of sight. Our friend proposed to watch the hive, until the queen came back, but a swarm coming out, and then another, his attention was called away, and he did not see her again. This seems to indicate that fertilization does not always take place high up in the air, as is generally claimed, but that it may take place a few feet from the hive; in the case of a queen with crippled wings, it seems that she *might* become fertile, even though able to fly only a yard or two, and then afterwards get back into the hive. We have now got the matter closed down pretty definitely, but shall look anxiously for further facts on the subject. Who will give the next link in the chain of evidence?

BEE BOTANY AND ENTOMOLOGY.

I SEND with this two samples of bee plants. Bees to-day covered the flowers or both plants. I also enclose a bee-like insect that seems to be very busy on plant No. 1, and also on mustard flowers.

Please give the names of the plants and insect, and the business of the insect on the flowers.

S. W. MORRISON, M. D.

Oxford, Pa., July 17th, 1878.

Plant No. 1 is a specimen of *Pycnanthemum Linifolium*, a wild basil, of which there are a dozen or more east of the Mississippi. If I judge by the specimens sent me from all quarters, and by what beemen say of this one and several of the others, I should decide that it is a fine honey plant.

Mich. Ag. Col., Lansing, Mich. W. J. BEAL.

Plant No. 2 is the button bush, *Cephalanthus Occidentalis*. It is a small shrub growing in marshes and on the banks of streams, and blossoms in July. It is thought worthy of mention, as a honey producer, by Prof. Cook, in his "Manual of the Apiary."

The insect we sent, by request, to S. S. Rathvon, of Lancaster, Pa., who writes concerning it as follows:

Your specimen is one of the "Leaf-cutter Bees" *(Megachile Latimanus)*, and is a male. It was this circumstance that delayed the answer; for, I had long known the female, which does not possess the raptorial anterior feet; and, in order to insure its identification, I submitted it to Mr. E. T. Cresson, who is one of the best, if not the very best, hymenopterologists in the country. If any thing peculiar in its habits has been discovered, not known to science, you will confer a favor by communicating it.

Smith described the female of this insect as a distinct species, under the name of *Magachile Acuta*, and the male as *M. Femorata;* but the most able hymenopterists recognize it under Say's name, given above. The sexual distinction was for a long time unrecognized. So you see, that it requires a long period, in some cases, to develop the full history of an insect. These bees are solitary in their habits; the females only engage in constructing a nest, which is usually composed of circular pieces which she cuts out of leaves, as clean as if cut out by a pair of sharp scissors.

The fact that the male is seldom, if ever, engaged in the labors of nest building, prevented the sexual distinctions from being earlier discovered, and also led to the idea of two distinct species, in the same insect. It is, however, not the only species that is a leaf cutter. Other species do likewise.

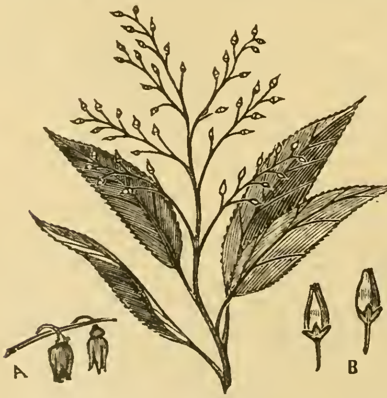
Lancaster, Pa., Aug. 10th, 1878. S. S. RATHVON.

SOURWOOD *(Oxydendrum Arboreum).*

The Sourwood, sometimes called the Sorrel, is a fine tree from 40 to 60 feet in height, and about a foot in diameter; although it sometimes reaches 70 feet in height, and a foot and a half through. The popular name, Sourwood, is derived from the odor and the peculiar sour taste of the leaves and small twigs.

It is entirely distinct from the black-gum and sour-gum or pepperidge, with which it has been unwittingly classed by some writers on honey plants, much to the injury of Sourwood. The former are honey producers to a small extent, but are not worthy to be compared with Sourwood, which, we are convinced after living where basswood, poplar, clover, buckwheat, golden rod, persimmon, and aster abound, has not its superior among the honey producing plants of America, either in the amount of yield, or in its beautiful appearance. Basswood is more important only because of its widely extended growth. We write this article, to call attention more directly to this tree as a honey producer. Beemasters are familiar with other flora which abound where those who have written our books on bee culture reside, yet few are aware of the merits of Sourwood, outside of the regions where it is found.

We are not familiar with the extent of its growth, but know this much: it abounds in the native forests from southern Pennsylvania into Georgia and Mississippi. It seems to be more abundant along the whole mountainous tract of country on both sides of the Alleghanies and the Blue Ridge, reaching, in places, even as far as the tide water on one side, and to central Tennessee on the other. In many sections where poplar abounds and much buckwheat is raised, Sourwood is considered *the honey plant*, and yields the largest amount of surplus honey. It seems to flourish best on high, dry soil, and often abounds on poor woodland ridges, which can be purchased at a nominal price; though the forests along the rivers, in rich cultivated soil, are often beautifully checkered with the white blossoms in July. Being a tree, the growth is tall and generally spare of branches along the trunk, except when it grows in the edges of fields, where it yields the greatest amount of honey. The trunk preserves its uniformity of size for some distance from the ground. The wood is white, with straight grain, which splits nicely. It is brittle and quite fine grained, and is used for posts by cabinet makers.



SOURWOOD LEAF, FLOWERS, AND SEED PODS.

The flowers (see engraving) are produced on spikes five or six inches long, which hang in clusters on the ends of the branches. Many of these flower bearing spikes are thrown out from one central spike, and are all strung with white, bell shaped flowers, rich in honey. The flower is midway in size and appearance between the whortleberry blossom and the lily of the valley. Unless there is a failure of the blossom, the honey yield is sure to be abundant; for, being in the woods with good roots, the flow is not checked by ordinary droughts, nor do the rains wash out the honey from the pendant, cup-shaped flowers. Often have we regaled ourselves, whilst riding along the road, by breaking a bunch of the blossoms, shaking out the honey into the hand, and licking up the delicious nectar. It bears no fruit, but each flower, as it dries up, produces a brown seed pod about the size of a large grain of wheat, which separates when ripe into five parts, and permits the very fine seed to fall to the earth.

With improved methods of securing honey and sending it to market, we believe that, in suitable localities in Virginia, North Carolina, South Carolina, Tennessee, and Georgia, immense quantities of the most attractive honey can be secured from this source. The extent of its growth may be wider, but not to our knowledge. Let those speak for themselves where it abounds, that the extent of this source of development of the honey industry may be better known.

We omitted to state that the tree commences to bloom the latter part of June, and the harvest from this source lasts until the middle of July.

We are inclined to think that the tree would thrive in moderate northern latitudes, perhaps, anywhere in our land. It is found abundantly, in many parts of the Alleghany mountains, where it is very cold, the thermometer often indicating several degrees below zero. JAMES W. SHEARER.

Liberty Corner, N. J., July 4th, 1878.

MOTHERWORT.

We think motherwort one of the best bee plants we have; it is far ahead of catnip; nothing, except basswood, beats it here. My bees have worked on it for a month, early, as well as late, in the day. C, A. HATCH.

Loyd, Wis., July 28th, 1878.

SPIDER FLOWER *(Cleome Pungens).*

Enclosed, please find a few seeds of a garden plant known as "the Spider," which secretes a large amount of nectar, on the outside of the flower. Probably you know the plant; if so, what is its botanical name, and the quality of honey? Would it pay to sow it for the honey? MOLLIE O. LARGE.

Pine Hill Apiary, Millersville, Ill., Jan. 31st, 1878.

On receipt of the seeds, I told one of the clerks, if she would sow them, and show me the plant in bloom, at the proper season, I would pay her a half a dollar for her time and trouble. To-day, Aug. 16th, the plant is in full bloom, and the bees at work upon it; but, strange to tell, it opens its blossoms only at about sunset, accordingly, after the time when the bees have usually stopped flying, they are seen eagerly hovering over this strange but beautiful spider plant.

The petals, which are of a beautiful deep pink, are all on one side, and on the other, we see what resembles long sprauling legs of the spider. The foliage also is quite ornamental, and we have decided to have a bed of it on our honey farm. We cannot tell about the quantity or quality of the honey.

P. S.—Our friend who raised the plants now refuses to take the half dollar, so I suppose this, too, will have to be put in the "Corner Stone" department.

WORK IN THE APIARY.

QUEENLESS STOCKS AND HONEY STORING.

TO-DAY, I noticed that what was one of my strongest colonies of hybrids, and one that began working in the 2nd story in wide frames, very early, was not doing well. I overhauled them, and had to use smoke and, finally, veil and gloves; and I must say I cannot appreciate the tenderness of heart that would discard the gloves, because of the stings deposited in them by over zealous bees. I, for one, prefer to see them wasted on buck skins rather than on my own. But the hive, I found queenless, and not one cell of young brood in it. There was plenty of honey below and not a drop in the new combs made in sections above.

FACTS IN REGARD TO "NATURAL" QUEENS.

Next to it, was a prosperous colony that had cast a large swarm the day before. It had the whole second story occupied, and after lifting that off, the 1st comb taken out revealed mature queen cells, and this the day after swarming; so it must have been a second swarm. The next frame and the next had each 2 cells; there were, in all, some 12 or 15. I saw a cap to one of the cells lifted, and a very handsome queen pranced out, gay and lively, and at once dove down into a honey cell for a feast. While securing her I saw another one come out, and at once decided to form two or more nuclei. Before I could complete the job, however, and within 15 minutes, I saw 6 queens come out. I kept each comb separate, to avoid a conflict or loss. The 1st and finest one (beautifully colored), in a few minutes, flew off the comb into the hive. The 2nd one was a full black, to all appearances. I was able to cage 2 and make 3 nuclei. The two caged ones were at once introduced to queenless hives. The rest were lost or went into the hive.

P. S.—This morning, I found a knot of bees on the portico of a hive near by, and a dead young queen in the middle.

I never saw a queen hatch before, and was surprised to see the strength and agility of these. But why is it that one was black, and one finely banded and light?

Such a season as this, I should think, would convince the most skeptical of the value of foundation.

The yield, this year, promises to be a very light one. I tried to avoid increasing by extending room and, in cases, by taking out brood combs and substituting empty ones or fdn. When the honey flow is abundant, I succeed well in checking the swarming. When moderately good, it seems that most of their energy goes toward increase. J. W. PORTER.

Charlotteville, Va., June 18th, 1878.

I would use the smoker, friend P., by all means; I would also use a veil, if compelled to; but I have never seen a case where I think buckskin gloves were even excusable, begging your pardon for differing. Your observation with the queens shows that even queens reared in the hive naturally vary greatly in color; does the color really affect their honey value, other things being equal? Young queens do frequently take wing and fly, when they have stayed in the cell, until they are fully mature. I do not know but that queens hatched in a full hive, under the conditions of natural swarming, are more apt to do this, for they often stay in the cells, apparently afraid to come out. Perhaps the defiant calls of the rival queens have something to do with this. If any disturbance occurs, such as the opening of the hive, this calling ceases and the queens push open the door-like caps to the cells, and take wing, crawl about, and cut up just as you have narrated. In such cases, if I wished to save the queens, I would make a nucleus of every frame in the hive, the old hive itself making another strong one. Such queens are almost sure to be speedily fertilized, for they are full grown.

PREPARING FOR WINTER.

PLEASE give me the best means of feeding up swarms when short of stores, preparatory for wintering. The continued wet weather and heavy rains, in this section, lessened the crop here, by ½ to ¾. Late swarms have done next to nothing. Drones were killed off about the 25th of July. Basswood honey was a failure. We have plenty of bees in the stocks and little honey. Shall we unite stocks, or shall we feed up the light ones? Will it do to feed uncapped honey in the comb in the fall, where they have *little or no brood comb built?* If my frames were only filled with brood comb fdn., I should be all right; but, as it is, I am at a loss what to do. We are using the Gallup frame. Perhaps I had better get some fdn. and insert, and then feed.

Lima, Iowa, Aug. 12th, 1878. W. STEARNS.

The matter has been gone over so many times lately, that I shall have to repeat to some extent. In the first place, be sure you have bees enough to winter; if you have not, unite until they are strong enough. I would not undertake to winter any colony, unless it could cover well, as many as 4 L. frames, which, perhaps, would be equivalent to 5 or 6 Gallup frames. If your colony has not as many as 4 good combs, they must be supplied with fdn., and made to build them out. If they are to do it this month, you and the bees both must stir yourselves, I tell you. There must be no forgetting them, and you must be at home every day, to attend to it. Close the space up by chaff division boards, until there is just comfortable room for the 4 frames, put in your fdn. where the combs are lacking, and then feed them every night, from a half pint to a pint of food. For building out the combs, the grape sugar will do just as well as anything, and it will also answer for winter until very severe weather sets in. Open the hive every day or two, and see how things get along. You want a good queen, and lots of brood started. Make them prosper, and build up. You will soon learn to know what prosperity means. They should be rearing brood, building comb, and getting full of bees, precisely as they do in June. You can feed them grape sugar safely, until about the first of Oct., and then they should be provisioned for winter. For winter stores, I would use coffee sugar; feed them about a half lb. every night, until their combs are full. If you have the 4 combs average about 5 lbs. each, you will be on the safe side. If your colony is heavy enough to cover 6 combs, clear out to the ends, during a cool night, they will perhaps need 6 combs filled so as to average 5 lbs. each. When you get the bees, and the stores, with the chaff cushions on each side, they are all ready to winter, by simply putting a thick chaff cushion over them. This arrangement is not as good as a regular chaff hive, but it has answered for several seasons past, quite well. If the winter is very severe, a colony that would cover densely 5 or 6 combs would be much safer than a smaller one. The main points are, a brood apartment closely packed with bees, and plenty of good sealed stores. With these two conditions alone, the bees will generally winter all right, even in a hive made of inch boards. If the bees are not enough to fill the hive, reduce the size of the apartment until they do fill it. This is usually done by a division board. If the walls of this wintering apartment are made of thin wood, the bees will then keep the thin walls of the hive, as well as themselves, warm all winter, and we shall then avoid the loss that often ensues by bees continually freezing to the outside combs. This is the purpose of the chaff hive; it is about as much use to put chaff and straw over the outside of great heavy hives, as it would be to put your bed clothes on the roof of your house, instead of next to your body, on a cold winter night.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, SEPT. 1, 1878.

Behold, I give unto you power to tread on serpents and scorpions, and over all the power of the enemy: and nothing shall by any means hurt you.—Luke 10: 19.

If your bees are getting no honey, look out for robbing; if they are getting honey, look thankful.

Our own apiary now comprises 211 colonies. The best yield of honey from any one is 141 1 lb. sections.

The *Cleveland Leader* says, "Bees can no longer be sent by mail. 'Only reason given by the Government is 'because.'"

We are now sending queens by return express, with so few failures, that it is really refreshing. Hybrids, 50c; untested queens, $1.00; tested, $2.00 and $3.00.

Our friend, Charles Revill, of San Bernardino, Cal., remarks very quietly, in a postscript, that his bees are doing very well so far; he has taken out *twenty four tons of honey.*

The last floor of the factory is being laid, as we go to press. A 50 horse power steam engine is already deposited in the basement, and I hope it will "push" things next year, so we shall not need any "Growlery."

Friend Nellis has withdrawn his ad. of Cyprian queens, because they are no different from Italians, unless it be that they are crosser. He writes that he has received about 20 orders for them. But prefers not to fill them, as he considers them of no practical value.

Some queen cells were to hatch on Sunday, but the hive was not opened until Monday morning, when 5 queens were found parading about on the combs. The 4 extra ones were put at once into colonies where queens had been sold, and not one of them was molested. So, you see, nothing was lost by suspending work on the Sabbath.

"Will," the clerk of the apiary, has just improved the bottle queen cage, so that no pins are needed, and the bottle can be taken out to be refilled, without removing the wire cloth. "Bessie," the queen clerk, has devised a way of fastening the cages together, with tacks and straw board, making a much neater package. Seven queens are just being "rigged" for a trip to California.

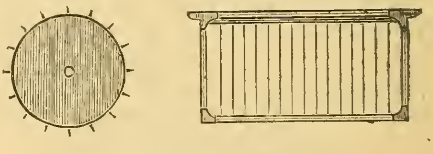
Messrs. Bingham & Hetherington have sent us a sample of their new extracting knives. They are beautifully finished and, doubtless, do the work nicely; we have had no opportunity of trying it, as it is not our season for extracting. The knife is so much heavier than anything we have ever used, that it seems as if it would be unhandy; but it may be just the thing for uncapping. The blade is so thick, that it can not well be used for any other purpose.

Because I have declined an article on the adulteration of honey, it has been intimated that I did it from selfish motives. I do not believe in "writing up" or "down," a thing, nor have I much faith in petitions to Congress, or Legislation; but I do believe in letting people exercise their own good common sense, and letting demand and supply regulate disputed questions. I have never bought or sold a lb. of glucose in my life; but I have sold a great many tuns of grape sugar for feeding bees, to incite brood rearing. Grape sugar cannot be mixed with honey, either in the hive or out of it, by any way that I know of, on account of its propensity to solidify, and separate. My profits are a quarter of a cent a pound.

In regard to what shall or shall not be published in Gleanings, it seems to me you have chosen me to be the one to decide; I am always glad of suggestions, but inasmuch as we have, all the time, a great deal more *good* matter than can possibly be used, I do not see how I can always *accommodate* all of you.

IMPROVEMENTS IN FOUNDATION.

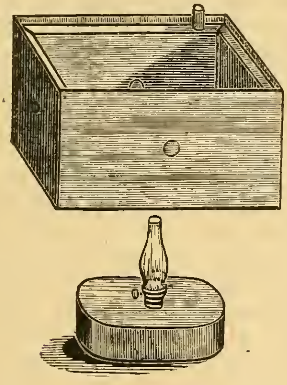
A SAMPLE of friend Nellis' new fdn. is to-day, Aug. 28th, just at hand. The novelty in its construction is in having the bottom of the cells perfectly flat, like the tin honey comb made by Mr. Quinby, many years ago. It occurred to me many years ago, that it could easily be made in this manner, but I thought then, and can but think still, that the flat bottom, instead of the natural shape, will cause the bees greater labor, and a greater consumption of wax. Again, the comb with the wires rolled in it is advertised at 80c per lb.; the sample before me weighs 5 feet to the lb., and this would give 16 cents, as the price of a square foot. In July, we made fdn. for brood combs, as thin as 8 feet to the lb.; but our customers complained of sagging so much in the extreme hot weather, that we raised the rolls and made it 5 and 6 feet to the lb. Again: now, just hold your breath a minute; *eight* feet to the lb., at 55c., would be 7c. per square foot—*nine* cents less than the fdn. with the wire in it. An L. frame holds just about a square foot. Now the object of the wires, is to keep the fdn. from sagging, and also to prevent the comb from breaking out. If you are going to have the comb so it cannot be shaken out or break down in shipping bees, etc., you want these wires securely fastened to the top and bottom bar of the frame. This cannot be done with the fdn. having wires in it, without much trouble and expense; but if we pierce the top and bottom bars of the frames and weave the wire back and forth, we shall have a most substantial job, and girls and children can do the work at a very small expense. The wires rolled into the fdn. are on a curve, so that some bulging is possible after all; but they may be put in the frame, as straight as a fiddle string. How shall we fasten our thin fdn. to the stretched wires? Simply lay the sheets in the sun, until they are soft enough, and lay them on the wires with a sheet of paper over and under them, and with boards between, just pile them up. This will hold them secure enough to bear shipping by mail, express or freight. Do you say it is a bother to bore so many holes in the top and bottom bars? Below I give you a cut of a frame filled with wires, and also of a wheel for pricking the holes in the wood.



STAYING FDN. WITH WIRES.

Friend Nellis uses the wires about 1 inch apart, but it hardly seems as if so many were needed. If you wish to try it on a few frames, you can pierce the holes rapidly with darning needles driven into a stout stick, with their points projecting just enough to pierce your frame stuff. Drive it down on them, and the holes are all made at once. The wire used is the finest kind of hair iron wire. To put it in the frame, cut off 13¼ feet, draw it through the centre of the frame first, and then weave each end each way. The fdn. may now fill the frame entirely, lapping on the comb guide just enough to hold.

LAMP NURSERY. Many have observed that, in hot weather, if queen cells are taken out just before they are ready to hatch, the queens will sometimes gnaw out just as well as if they were with the bees. It is also known, that queens just emerging from the cell may generally be allowed to crawl among the bees of any hive, and will, as a rule, be well received. Taking advantage of these two facts, our neighbor, Mr. F. R. Shaw, of Chatham, Medina Co., O., in the fall of 1873, constructed the first lamp nursery. This first machine worked well enough to demonstrate the feasibility of the plan, but, as he depended entirely on hot air to keep up the requisite temperature, it was quite liable to destroy the cells by the unevenness of the temperature. The day after I visited him, I noticed that the copper reservoir on our Stewart stove was sufficiently warm to hatch queens, although no fire had been in the stove for more than 15 hours, and the last night had been cool. This gave me the idea of using a considerable body of water; and before night, I had a hive made with double walls of tin, as shown in the cut below.



LAMP NURSERY.

The space between the two walls is, perhaps, one inch, and extends under the bottom, as well as around the sides, that the body of water may entirely surround the contents of the nursery, except on the top. The top is to be covered with a quilt, or a warm blanket. The whole should be used in a room well protected from the changes of the weather. It may be kept in a large box, but it is not near as convenient as a room. As accidents sometimes happen to lamps, I would set the lamp in a tall stove, one of the kind that will admit of the top's being taken off, and set the nursery over it. The top of the lamp chimney should be about a foot below the nursery. A second-hand stove, such as was mentioned for making CANDY FOR BEES, will answer every purpose. Such a body of water between two sheets of tin, will cause them to bulge badly unless we put a brace across from one to the other in the centre on each side; the position of these braces is shown by the tin cap that covers them in the cut. Light your lamp, turn on a strong blaze, and watch until the thermometer, which should be kept inside the nursery, shows between 90 and 100°, then turn down the wick, until the temperature remains about there. If it gets much above 100, the cells may be injured; and it should not be allowed to fall much below 80. We are now ready for our queen cells.

HOW TO GET CELLS FOR THE NURSERY.

You can cut out queen cells, from any place in the apiary, and lay them in the nursery, but as we wish to avoid cutting such unsightly looking holes in our combs, it is better to take the whole frame, cells and all. Shake and brush off every bee, and hang the frame in the nursery just as you would in the hive. Get frames from different hives, until you have the nursery full, if you like. The reason we have the nursery so large, is that it may contain a great number of frames having queen cells. Now you find a trouble right here; the worker bees will hatch and bite out in this warm temperature just as well as the queens; and very soon we shall have a smart hive of bees, and be no better off, than in an out door hive. You can take out these young bees as fast as they hatch and give them to some colony that needs them, or start nuclei with them, but this is so much trouble, I would advise a better way.

HOW TO AVOID HAVING ANY WORKER BEES IN THE NURSERY.

You will recollect that a worker bee cannot hatch out in less than 20 or 21 days from the egg, while the queen hatches in about 16. Well, if we get all of our cells, by giving a frame of very young larvæ to the colony building them, the queens will be all out of the comb several days before a worker can hatch. This is the way we do it. Get a clean, new, worker comb, or better still, a sheet of fdn., and place it in the centre of the hive where your best queen is. Let it remain until the first eggs laid in it have hatched into minute larvæ, as explained in ARTIFICIAL SWARMING. Hang this frame in any queenless colony, having no other unsealed brood, and they will at once build queen cells upon it. If you will cut two oblong slots in the comb, many think you will thus secure a greater number of cells; but, as this disfigures and mutilates the combs, I have not followed the plan much, since using the nursery. The frame can be taken out of the hive, and placed in the nursery, as soon as the queen cells are capped over; but, as much of the unsealed worker larvæ would not be capped over by this time, I would prefer to wait until 8 or 9 days after the frame was first given them. All worker brood will then be capped over, so that none of it will starve and die, and the queen cells will be so far advanced that but little danger need be feared from shaking the bees off, or from handling them. After taking their cells away, you can give them a second lot of small larvæ to start cells from, or you can give them a young queen from the nursery, as is most convenient. If you can so manage as to give them a queen after rearing a lot of queen cells, and thus alternating, you will probably have less trouble in introducing. If you keep adding fresh combs or cells to your nursery every day, you will soon have queens hatching almost hourly, and sometimes three or four will come out of their cells almost simultaneously. By holding the comb of cells up to your ear, you can easily hear the queen biting her way through the capping with her strong mandibles. If the cells are built on new combs, or fdn., you can see the motions of the queen, by holding the comb up to the sun or a strong lamp light, and these motions commence from 10 to 24 hours before the queen is ready to come forth. Taking advantage of these facts, we will remove, in the evening, all queens that seem likely to hatch before morning. Where the cells are built on new sheets of fdn., the queen, cell and all, can be picked off the sheet, without even so much as making a hole through the comb, and I have found this an excellent way of introducing, to take the queen in the cell, as soon as she begins to move about, and place it in the hive or nucleus where wanted. Queens that are found hatched and crawling around in the nursery, in the morning, should be taken, at once, to the queenless hives or nuclei waiting for them. Be sure that the hive is queenless, and then just set them down in front of the entrance, and let them crawl in; I have found this plan as good as to open the hive. It seems almost ridiculous, to think we can carry these virgin queens around and let them run into the hives, and find them laying a week afterward, without any farther trouble, but it is something we have done a great many times. To introduce them in this way to a hive that has just had a laying queen taken from it, is a little more uncertain, yet we have done it, and there is one very decided advantage in so doing; because the colony will then, at no time, be out of unsealed brood. The saving in time by giving a colony a bright live queen, instead of a queen cell which may not hatch inside of 3 or 4 days (perhaps not at all), is quite an item. The first queen that hatches, one would suppose, would tear down all the rest of the cells, as she does in the hive; but such is not the case, where there are no worker bees present, as in the lamp nursery. It is true, we occasionally find a queen tearing open the other cells when left too long, but not often. They do sometimes, also, sting each other; but, if they are looked after the first thing in the morning and the last thing at night, very few will be lost from this cause. Some unsealed honey should be found in the cells, for these queens are very fond of a good "square meal," about as soon as they have had time to stretch themselves. I have noticed that they seem to have a preference for newly gathered, thin honey, and as the honey in the open cells gets quite thick after being exposed to this high temperature, it has lately occurred to me, that some diluted honey, as soon as they are hatched, might be better for them,

INTRODUCING VIRGIN QUEENS.

Although these young queens, like newly hatched chickens, or young puppies and kittens, are disposed to take up with the first animated object they set their eyes on, yet there has been considerable trouble in introducing them. With weak stocks or nuclei, that have been a day or two queenless, there is little trouble, and, in fact, the bees of a large colony will allow these young queens to crawl in without a word of objection at the time, in the majority of cases, but when she gets a day or two older, then comes the difficulty. I have not been able to discover how the trouble comes about, but so many of them are found in front of the hive, either dead or just able to crawl, that I have rather given up introducing them to full stocks, unless they have been some time queenless.

The introducing part of the lamp nursery plan of rearing queens is the one great obstacle, and it is evident that there is something about it not fully mastered; for, at times, we succeed so nicely with every queen, that it seems as if there were no need of failures at all, but again, almost every queen is lost. It was suggested, a few years ago, when these queens hatched by artificial heat were first put into the market, that they would prove less hardy; but I believe that such has not proven to be the case, for some of our best stocks have been built up from these, and they have proved just as long lived as any.

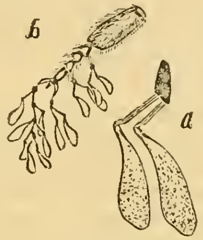
After your combs have been in the nursery a few days, you will have to keep a look out for moth worms, or they will get into your queen cells, and make trouble. See BEE MOTH.

It may be well to remark, that these virgin queens are introduced to full blood Italians, with much less trouble than to either blacks or hybrids; they are also accepted by a small colony or nucleus, better than by a full hive; and by any hive that has been a day or two queenless, better than by one from which a laying queen has just been taken. With the lamp nursery it is an easy matter to raise queens by the thousand, at a cost generally not exceeding 25c each; but the most expensive part of the work comes afterward—getting them fertilized. At present, I know of no better way than the one given in QUEEN REARING and ARTIFICIAL SWARMING (giving each queen a small colony); but we shall doubtless make rapid progress in the matter, if the demand for queens continues to increase, as it has of late.

MIGNONETTE (*Reseda odorata*). We have had little practical experience with this plant, beyond a small patch of the tall variety in the garden. Although this kind did not have the perfume of the ordinary small kind, it was humming with bees for months; and, as they work on it all day, it will prove valuable for keeping them busy during the fall months. The following we extract from Lane's catalogue.

> "If cultivated to that extent that it might or ought to be, it would certainly furnish a rich pasturage for bees. A small patch of it will perfume the air for quite a distance; and were it cultivated by acres for bee pasturage alone, we should be favored with a fragrant atmosphere that would vie with the spicy breezes of Ceylon, and a honey that would outdo the famed honey of Hymettus for aromatic flavor.
>
> "It blossoms in the latter part of June and continues in bloom until cold weather (heavy frosts do not injure it); indeed, we are informed by our Southern friends that with them it continues in full bloom during the entire winter. There are many varieties, but we think all are inferior, for field culture, to Parson's New Giant. The seeds, which are very small, should be sown in the spring, sowing thinly and covering lightly, in drills at least three feet apart. Would not advise sowing broadcast."

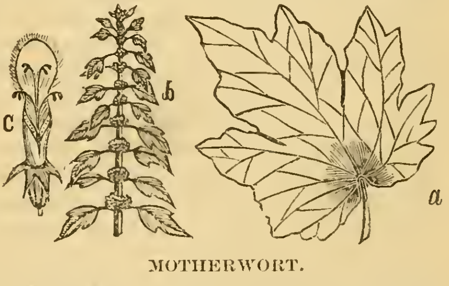
MILKWEED (*Asclepias Cornuti*). This plant is celebrated not for the honey it produces, although it doubtless furnishes a good supply, but for its queer, winged masses of pollen, which attach themselves to the bee's feet, and cause him to become a cripple, if not to lose his life. Every fall, we have many inquiries from new subscribers, in regard to this queer phenomenon. Some think it a parasite, others a protuberance growing on the bees foot, and others a winged-insect enemy of the bee. We give below an engraving of the curiosity magnified at *a*; and also of a mass of them attached to the foot of a bee.



POLLEN OF THE MILKWEED, ATTACHED TO A BEE'S FOOT.

It is the same that Prof. Riley alluded to, when he recommended that the milkweed be planted to kill off the bees when they became troublesome to the fruit grower. The folly of such advice—think of the labor and expense of starting a plantation of useless weeds just to entrap honey bees—becomes more apparent, when we learn that it is perhaps only the old and enfeebled bees that are unable to free themselves from these appendages, and hence the milkweed can scarcely be called an enemy. The appendage, it will be observed, looks like a pair of wings, and they attach themselves to the bee by a glutinous matter which quickly hardens, so that it is quite difficult to remove, if not done when it is first attached.

MOTHERWORT (*Leonurus Cardiaca.*) Quite a number of the bee folks insist that motherwort is superior, as a honey plant, to either catnip, hoar hound, balm, wild bergamot, or any of the large family of Labiatæ, and I presume such may be the case under some circumstances, or in favor-



MOTHERWORT.

able localities. In comparing plants, it should be remembered, that those that bear much honey usually may, at times, furnish none at all; and also those which usually furnish none may, under very favorable circumstances, yield largely.

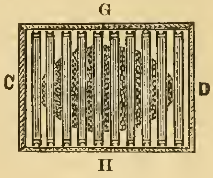
This plant often flourishes about fence corners, and around the ruins of old dwellings, sheds, or even hog pens. The large leaf, taken by itself, much resembles the currant; the stalk is much like catnip; and the little flowers are in tufts, close to the stalk. It remains in blossom a long time, and may be as worthy of cultivation, as any of the plants of its class.

MUSTARD (*Sinapis Arvenses.*) This belongs to the same family as the turnip, cabbage, rape, etc., all of which, I believe, almost invariably furnish honey while they are in bloom. We have a good opportunity of testing these plants, because acres of them are raised for other purposes besides the honey. It will be a hard matter to determine which is best for your locality, without trying a plant of each. Find out what kind of a market you have for your seed, and then proceed to raise it, as if you were going to depend on the seed alone to pay expenses. Should you secure a good crop of honey from it, you will then be so much ahead, and there is little chance of any great loss.

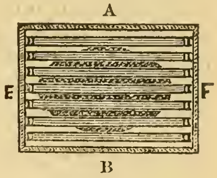
The honey from these plants is said to be very light, equal to any in flavor, and to command the highest price in the market. The seed should be sown very early in the spring, either in shallow drills so far apart that the cultivator can be used between them, or broadcast. The former plan is, of course, the better one for nearly all honey plants, but is more trouble. From 6 to 10 lbs. per acre will be needed, if sown in drills, and from 15 to 20, if sown broadcast. If you wish to save the seed, it should be sown not later than July 1st. When the greater part of the pods are ripe, the stalks are to be cut and carefully dried. A cloth should be spread in the bottom of the wagon, when gathering, for the seed will shell out considerably, if it is in proper condition to thresh. I presume we have machines especially adapted for cleaning and threshing the seed, but I have always seen a flail and fanning mill used. Of course, it should be threshed on a tight floor, or on a floor made tight by a large piece of canvass. The seed of the common kinds of mustard brings four or five dollars per bushel. I do not know how many bushels are raised per acre. The Chinese variety has been highly extolled for bees, but we have found the common black mustard that grows almost of itself to thrive better, and be more visited by the bees. Who will give us the results of some practical experiments?

NUCLEUS. This word applied to bee culture, signifies a small swarm of bees, perhaps from one-fourth to one-tenth of a full colony. The plural of the word is nuclei; it were well to bear this in mind, for there is much confusion in the use of the terms, even in printed circulars. If you remove a dozen bees from the hive, take them so far away that they are homeless, and then let them fly, they will after a time come pretty nearly back to the place from which you released them; but unless they have a queen with them, they will soon wander away and be lost. If you give them a queen, they will come back to where they left her, and will probably remain if *she* does not stray away. She, like the rest, must fulfill her destiny, or she will wander away; we shall therefore have to provide her a comb wherein to lay eggs. The bees would build the comb themselves, if there were enough of them, and they had plenty of food. A dozen would never build any comb; neither would they make any attempt to rear and hatch her eggs, if the comb were given them. Perhaps a hundred bees put in a suitably small box, with a fertile queen, might start a colony, and this is what we call a nucleus. It is the centre about which a colony of bees may in time be formed. If they should be built up to a full colony, the building up would be done by the queen's filling her combs with eggs, which, when cared for by the nursing bees (see BEES), would be converted into larvæ, and in 21 days, would be hatched into perfect bees. These bees would then help the original hundred, and the queen would fill a still larger area with eggs, which would be hatched in the same way, and so on. The difficulty in the way of building up from such small beginnings seems to be that the queen will lay all the eggs a hundred bees can care for, perhaps, in an hour or two, and then she has to sit or loaf around for the whole 21 days, until she can have another "job." Before the 21 days are up, she will be very likely to get disgusted with such small proceedings, and swarm out, or at least induce the bees with her to do so. If we should increase the number of bees to 500 or 1,000, we would get along very much better, and there would be little danger of swarming out, unless the hive given them were too small. A very spry and ambitious queen might fill all the cells the bees had prepared for her, then set about filling them the second time, as they sometimes do, and then swarm out; but, with a quart of bees—about 1,000, if I have figured rightly—things will generally go along pretty well.

If we are to have this quart of bees work to the best advantage, something depends upon the sort of hive they are domiciled in. A single comb, long and narrow, so as to string the bees out in one thin cluster, is very bad economy. Two combs would do very much better, but three would be a great deal better still. It is like scattering the firebrands widely apart; one alone will soon go out; two placed side by side will burn very well; and three will make quite a fire. It is on this account, that I would have a nucleus of three, instead of one or two frames. The bees seem to seek naturally, a space between two combs; and the queen seldom goes to the outside comb of a hive, unless she is obliged to for want of room. Is not the Langstroth frame then a poor shape for building up nuclei? and would not the small Gallup be better? The L. frame is a bad shape for two or three frame nuclei, and, for that matter, I think the Gallup is also. The one is too long, and the other too deep; in one case, we have the ends extending beyond the cluster, unless we contract the hive so as to crowd the bees out to the ends, and, in the other case, the bottom of the frame extends below the cluster. This matter of deep and shallow frames seems not to be very well understood, if I may be excused for saying so much. If you will examine bees at the approach of frosty weather, you will see, from the way in which they draw up and condense, how their combs need to be proportioned. To have them stand the rigors of severe winter weather, they should fill their hive as nearly as possible, and there should be no cold unfilled spaces either at the ends, or underneath the cluster. If their hive is so full that bees are standing in the doorway, even during severe cold weather, we need have little fear of their suffering. Now, with a shallow hive, they will come clear down to the bottom board, and keep that warm as well as the ceiling over head. With a frame as deep as the Gallup, I have not succeeded so well in making them do it. Nor can I succeed so well with any frame, whose depth is as great as the width. The warm combs are at the sides of the bees, and the open ends between the combs, are at the ends of the cluster. The diagram below will help to make it plain.



GALLUP.



LANGSTROTH.

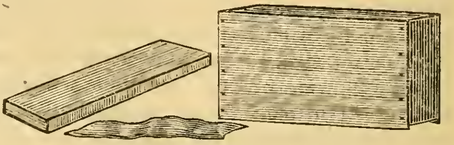
It is very plainly evident that the sides of the clusters, A B and C D, are much better protected than the ends, G H and E F; and also that the long frames protect the centre of the brood nest much better than the short ones. Taking this fact into consideration, in connection with what has been said of the importance of a shallow frame, and we shall have just about the dimensions of hive and frame given us by Mr. Langstroth; and, if I am correct, all these things were taken into consideration, when he settled down on his frame and hive, after years of careful experiment in regard to different sizes.

Well, if the L. frame is the best economy for the average progeny of a queen, we must have a smaller frame in just about the same proportions, if we wish to work with nuclei to the best advantage. As we cannot well have a frame for a pint of bees, and another for a quart and so on, on account of the complication it would make in an apiary, it behooves us to discuss well what sizes we shall use, if any, less than our regular frame. A frame as deep as the usual one, and as wide as the *width* of our hive, makes a very pretty frame for queen rearing.

The Gallup frame would do nicely, and, in fact, is much used for this purpose, but it is too deep; were it cut down to the size of the L. frame, I should like it much better. A frame has been suggested, and I believe somewhat used, for a nucleus hive, of the depth of the L., and just wide enough to go crosswise, in the Simplicity hive. An ordinary hive with a rabbet along the sides, as well as across the ends, will hold these frames or the usual L. frames, as may be desired. If it should be desired to use this small frame entirely in an apiary, the size is exactly right to hold 6 of the 1lb. sections. When used for queen rearing, 3 of these small frames will make a very comfortable nucleus. One of the prettiest queen rearing apiaries I have ever seen, was composed of about 50 three frame hives of this description.

Although I have described this small frame, and spoken of its advantages, please do not understand that I would advise you to adopt it. If I were going to have two-sized frames in my apiary, I would adopt just these, without question—the large one for honey and the small one for queen rearing. But can we afford to have these two sizes, even if they do both hang in the same hive? Before answering, I would state that I have worked for years with two or more kinds of frames, in the same apiary, and have multiplied, divided, and united again, until I think I have had experience in nearly all the changes that come about, and each year I grow more determined that I will have but one sized frame in the apiary, and no odd ones any more, *under any circumstances.* This one size shall be the L. frame I have given you, and if I should sell all my bees to-day and start anew, I would use this without hesitation. If this is our determination, it behooves us to see what can be done toward ameliorating the objections to the long and large L. frame. Strong nuclei will do it without question, and if one wishes to make his queen business a sure thing, without the vexations of swarming out, robbing, etc., there is nothing like strong nuclei, to take care of themselves. For queen rearing, I would have the ordinary Simplicity hive, one story, with a division board, and then the increase can readily be accommodated, and all that increase to a full swarm are all right, without any changing and shifting of hives. If desired, two nuclei can be put in one hive, by using a tight division board, and making the entrances at either end. This plan does very well, but there is more danger of the swarms mixing, than where separate stands are used for each hive. The rustic chaff hive, given on another page, seems nicely adapted to this purpose, and from the fact that it gives protection in cold weather, it is much better than a single walled hive like the Simplicity. The bees will winter in a hive like this, almost as well as if the two were in one cluster; for, if the division board is of thin wood, they will cluster up against it on both sides, on account of the mutual warmth felt through the board by each. In using hives with a division board between two colonies, great care should be used in making the division board *tight.* I do not know how many failures have resulted from having the board shrink or warp, and thus let the bees through. Although wire cloth has been made to do in a few cases, it will not do to depend on it. Sooner or later, the bees will kill one of the queens, and behave themselves as one colony. I have raised queens, one in each side of a hive, both nuclei using a common entrance, with no division board at all, but such cases are exceptional.

The above arrangement does very well so far as queen rearing is concerned, but where nucleus colonies are to be sold and shipped, we must have a little 3 frame hive on purpose. These are to be as light as possible, consistent with strength, to save express charges, and, for the same reason, should be as simple as possible.



3 FRAME NUCLEUS HIVE.

A sheet of enameled cloth, hemmed at the sides and ends, is made to lay over the frames, as in the large hives, but the cover is made to shut over the hive. These hives answer perfectly for rearing queens during the warm months of July and Aug., and one of them will be found on a shelf attached to the trellis, in the engraving given under QUEEN REARING. No bottom is used to the hive, the shelf that it rests on being bottom enough; the front board is made ¼ inch shorter than the sides and back end, to form the entrance. When the bees are to be shipped, the cover is placed under the hive, closing the entrance, and a piece of wire cloth, is tacked over the top, after having fastened the frames by pushing sticks of proper size between them. In these small hives, this gives ventilation enough. For 3 frames, the hive should be 4¾ inches wide inside.

There is still another reason for using a nucleus hive with full sized frames, and it is that those who purchase valuable queens in a nucleus, to save the risk of transferring, usually wish to build them up at once, to full colonies; with an odd sized frame, this would be very inconvenient.

POLLEN. We are interested about pollen, because bees cannot rear brood to any great extent without either it, or some substitute for it. Bees kept in confinement, and fed on pure sugar and pure water, will thrive and void little or no excrement; but as soon as pollen, or food containing the farinaceous element, is given them, their bodies will become distended, and instead of a transparent fluid, they will void a fluid of a darkish tint, which will soil their hives, and emit quite an unpleasant smell. I once kept about 300 bees in a cage with a queen, and gave them only pure sugar and water. They built comb, and seemed quite contented, the cage emitting no smell at all. In order to start brood rearing, I gave them some sugar candy containing flour, and they got uneasy very soon, and tried in vain to get out. At this time, the cage gave off quite an unpleasant smell, and so they were allowed to fly; had the pollen element not been given them, I presume they would have stood the confinement for a month or more. I once wintered a fair colony of bees, on stores of pure sugar syrup, and when they flew in the spring there was no perceptible spot on the white snow about their hives. They had no pollen, and, of course, no brood rearing could go on without it. A few years ago, I made some experiments with bees confined in a large room under glass. As it was late in the fall, after brood rearing had ceased, I did not know whether I should succeed in starting them again. After feeding them for about a week, eggs were found in the cells, but none of them hatched into larvæ. A heap of rye meal was placed in the centre of the room near the feed, and anxiously I waited to see them take notice of it. After several days, a bee was seen hovering curiously about it. In breathless suspense, I watched him, until he finally began to dip his tongue into the heap, and then to pad it on his legs. He carried home a small load. I had the hive open, and the frame out, as soon as he was among his comrades, and watched the behavior of the rest while he shook himself among them, untll he deposited his treasure in a cell, and hurried away for another load. Very shortly some of the rest followed him, and buzzed about the room, until they found where he was loading up, and soon they were at work on the meal, as merrily as in the spring. Of course, the eggs were very soon, now, transformed into unsealed larvæ, then into capped brood, and, in due time, I had young bees hatched out in the month of Dec.

By warming the room with a stove for several days in succession, I found I could start brood rearing and pollen gathering even in the month of January. It may be well to state here that, although I succeeded in rearing bees in midwinter, as strong and healthy, apparently, as those raised in summer time, the experiment was hardly a success after all; for about as many bees died from what I suppose was the effect of confinement, as were hatched out. It was a decided success, in determining many unknown points in regard to bees, aside from the office of pollen, and I presume, if it ever should be necessary, we could overcome the difficulties of flying bees under glass.

ARTIFICIAL SUBSTITUTES FOR POLLEN.

It has been known for many years that, in the spring time, bees will make use of the flour or meal of many kinds of grain, and many bee-keepers feed bushels of it, every season. The favorite grain seems to be rye; and, as the bees are apt to fall into it and sometimes get so covered as to perish, I have been in the habit of having the rye ground up with an equal quantity of oats. A great many plans have been devised for feeding it without waste; but, after all our experiments, a heap of meal on the ground seems about as satisfactory as any way. Of course, it should be protected from rain, and as there is usually much high wind in the spring, which is, to say the least, very annoying to the bees, it is well to have it in a spot sheltered as much as possible, always aiming to give them as much sunshine as may be. By way of experiment, I have concentrated the rays of the sun on the meal heap, by mirrors, that the bees might work on days otherwise too cold; I have also made glass covered structures for the purpose; and have even kept their meal hot by means of a lamp nursery; all these plans have succeeded, but I am inclined to doubt whether stocks pushed along, in brood rearing, by such means, were really in advance of some that were left to take their chances. It is amusing to see the little fellows start from their hives on days so cold that they would not otherwise stir out, hie to the warm meal and load up, and then go home so quickly that they do not have time to get chilled.

Is there any danger of feeding them too much meal? In our own apiary, I have never known them to take so much that it was not used at once for brood rearing; but I purchased of a neighbor some hives which contained flour in the cells, dried down so hard as to make it necessary for the bees to cut it out, comb and all, as the only means of getting rid of it. I presume this came about by the sudden appearance of natural pollen, when they had laid in a pretty good supply of the flour; it is well known, that as soon as the natural pollen can be obtained, they at once abandon all artificial substitutes. I think there is but little danger of giving them too much rye and oat meal, but I would not risk giving them great quantities of fine wheat flour.

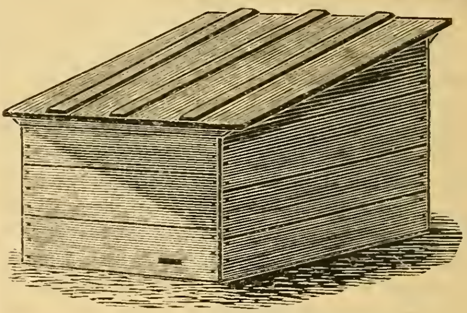
To be Continued.

LINDEN WOOD FARM APIARY.

WHAT I GLEANED IN ONE FORENOON, THE 16 OF AUG.

SHE waked me up—the baby did, and, as it was after 5 o'clock, I proceeded to clothe myself in my linen trousers, with mind intent on the apiary. Now Mrs. R. protests against these same linen clothes, but, with the amount of "tearing around" I have to do during these hot summer days, anything heavier and more complicated would be entirely out of the question; so I consented to add to the aforesaid pants, a long linen coat, just to give proper "dignity," you know, to the "boss" of the factory. The bees, to my great delight, were just tumbling before the hives with their great loads, and Mrs. R. and the baby, too, were soon summoned to share the general rejoicing over a fall crop of honey, and no sugar to be bought—no, not even the cheap grape sugar. Like a huge caravan, and with a great amount of roaring, the bees were going, by the thousands, in a particular direction. By and by, I too, was going in a "particular direction," with as huge strides as the long coat would well admit of. After delivering the morning's queens at the depot, I passed over to the factory (the factory is located right adjoining the depot, you know), and after interviewing the masons, carpenters, and carriers, passed across to where the field of silver hull buckwheat was just coming into bloom. You see, we are to raise our own seeds after this. Well, the field was roaring with bees, and, after talking with the men who were preparing the ground just back of it for sowing seven top turnips, I went on, to see a field of common buckwheat a mile beyond, where the owner had been furnished with the seed free of charge. The light clothing, light, easy walking shoes, with the fresh morning air, soon made me feel like jumping over every fence I came to, and when I passed through a field of red clover, and found the Italians all over it, as if it were June, I——felt thankful, and said so, the best I knew how. Those who say Italians do not work on red clover would better go out into the fields and look about. The field of common buckwheat had more bees on it than the silver hull, but it had been sown some days earlier; the greater part of the bees, too, were black bees or hybrids. Right close to this field was one of the A B C class, who has about 30 hives, mostly devoted to queen rearing. His pretty little apiary is at the back of the house, and a great part of his bees have been obtained by getting wild bees from the woods. I climbed over the fence, and, after a survey, noting how he had adopted, here and there, the hints given in Gleanings, I walked up to the back door, and, seeing him comfortably seated, reading a paper, called him by name. Out he came, with a bound, and a hearty welcome. Do bee folks always welcome everybody so heartily?

Our friend, Clark, always works among his bees barefooted; and, as there is a soft carpet of grass, except in front of the hives, I really can not but say I should like to do the same way. He uses one of the old style Quinby smokers, and it does not go out either; for he has a supply of nice rotten elm wood broken up in small pieces, that he keeps in a pocket somewhere behind him, in his light pants, for he evidently agrees with me in regard to "simplicity" in clothing, as well as in bee hives. The hives were opened, and sure enough, in almost every one, we found new honey and comb building in the central frames, and the peculiar white caps of the new wax, so encouraging to the owner of the apiary. As I expressed surprise at this, he remarked that there was one hive which he must show me. One-half of this hive contained new white combs as pretty as any seen in the month of June. Four combs had been partly filled, and some of it sealed over, since basswood had failed. I cut out a piece and tasted the honey, and it was pure clover honey, with no taint of buckwheat. These full bloods were filling the hive with honey from the red clover faster than the blacks and hybrids were getting it from buckwheat. The honey from red clover is very much like that from the white, but has a little more of the acid in it. It is hardly as pleasant, although the color is about the same. Mr. C. showed me bees working freely on Alsike clover, which is the first time I ever saw them do it in the month of Aug. These two colonies were full bloods. When I first came into the yard, I was inclined to laugh at his home made chaff hives. Our artist went over and made a drawing of one, which is shown below.



CLARK'S RUSTIC CHAFF HIVE.

When our friend tumbled the cover off of one, and took out the clean chaff cushion and laid it on the cover, revealing two, fine, 4 frame nuclei for rearing queens, I changed my mind about them. The inside is just like the inside of any L. hive, only that he had a partition board that extended a little higher than the sides. Some pieces of carpet, of *just the right size*, covered the frames of each side. The entrance to one colony is shown in the cut; the other is exactly like it, on the opposite end. I remarked that such hives would be exactly the thing for rearing queens in cool weather, and that they would winter there without any doubt. He replied that two stocks had wintered in each one of them, without any trouble so far.

The beauty of this chaff hive is that it costs almost nothing. Any old boards will do to make it: even if the cracks between the boards are so open that the rain beats in, it would soon dry out; the over hanging roof, which is made of rough, unplaned boards, like the rest, would probably shield it from the greater part of the storms. Any old, black, rough boards will make the outside, but the inside should be made of ½ inch stuff, planed at least on the inside. The dimensions inside should be very accurate, to hold the L. frame.

Although friend C. is great on economy, and believes in making his bees pay their way as they go along, he is a staunch advocate of fdn. and the metal corners. The hives mentioned, were about 2x2½ feet, and were not intended for an upper story, although this could easily be set on, in place of the chaff cushion, at any time. The entrances are simply little wooden shutes extending from the inner hive, through the chaff and the outer shell. Now where you feel that you have not very much money to spend for chaff hives for wintering, and are not particular about the looks, I think these will do very well; for they will give just as good results as any; perhaps, in fact, better than the nice painted ones, for they are so well ventilated, that they are much like the original, stereotyped, old straw bee hive. Friend C. raises beautiful queens in these hives, anyway. That is all; good day.

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I rejoice to tell you that the bottle queen cage will keep queens all summer, if we wish. Some of the workers will die in 4 or 5 weeks; but, by putting in fresh young bees, and taking out the dead ones, there seems to be no trouble in keeping them any length of time. In cool weather, we shall need quite a little cluster to keep the necessary temperature. At first, we lost a few queens, by having the orifice in the cork a little too large; the water got shook out and wet the bees. The cut in the cork should be just enough to let the bees get their tongues to the water. In going to Texas and Oregon, the bees used all the water out of the vial, and then died. We now use a 2 dram vial, for long distances. We have several dozen hybrid queens which have been kept in these cages since July, and, as they seem brisk and lively, I think we may say that queens are no longer perishable property. It seems now, that there will be no difficulty in keeping queens thus all winter.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

I HAVE made and sold some bee hives having the Adair frame, with a nail driven in each end of the top bar, by which they hang on a strip of tin, on each side of the hive. Now, has Gillispie or Gooles' Common Sense Hive a patent on this way of hanging a frame? The hive is put together like the Simplicity, with portable bottom and top. I am threatened with the penitentiary and the United States Marshal. Please tell me by return mail, if possible, whether I am infringing on any person or not. Inclosed find 25c for trouble. A. A. POTTER.
Columbus, Mo.

Mr. Editor; will you be kind enough to state, in next No. of GLEANINGS, if the hive called the New Langstroth Hive is covered by a patent, at the present time, and oblige H. J. T.
Ravenna, Mich., Aug. 22nd, 1878.

I want you to send me July No. of GLEANINGS, for we have lots of Mitchell's agents here, as they claim themselves to be; they don't show any authority to prove that they have got a patent bee hive, but threaten to prosecute any one who may use any thing, in shape, like their hive. WM. H. MURPHY.
Paintersville, O., Aug. 20th, '78.

Letters like the above are not as plenty as they were a few months ago, but still there are localities, where these men are frightening people, by threats, into handing over the money. The whole matter is utterly ridiculous; they have never prosecuted any body, and have no thought of so doing. There is no such thing as a "New Langstroth Hive." and the party who thus uses Mr. Langstroth's name is a swindle and a fraud. At the time Mr. L. gave his invention to the public, he very clearly stated his views of patents on bee hives. If the copy of Mitchell's patent that is contained in the July No. will enable your friends to save their money, we will send it with pleasure. It matters not what hive you use, these fellows will claim that it infringes in some respect, and get the money, if they can. Several complaints have been made that they are trying to "run" the Cottage Hive in the same way. Successful bee-keepers have no sort of use for patent hives of any kind. No 25c, or any thing else, need ever be sent to pay for the trouble of answering questions; it is our business.

MARKETING HONEY.

HOW are we to put our honey on the market, in order to realize a fair price for it? This is a question of vital importance to every bee-keeper. I fully agree with GLEANINGS, in advising all to dispose of their honey as near home as possible. If you send to a commission house in a distant city, nine times out of ten, you will be dissatisfied with the small return made for your lot of honey. If you send extracted honey, it will probably candy before being sold, and then both the commission merchant and the purchaser conclude that it is made from sugar, and strike a bargain at 8 or 10 cts; the buyer feels that he is paying all it is worth, and the seller feels pleased that he is rid of such a fraud. If sent in the comb, it will be more or less broken, and within two or three days will be spreading over the floor, to the great annoyance of the merchant; and he, knowing that he will get a commission on it whether it is sold for much or little, disposes of it for the first offer he gets. Then, in either case, when the freight, drayage, shortage, and commission are deducted, there is little left for the poor bee-keeper.

Go to your grocer, tell him that you will put up your honey in an attractive and convenient shape for putting on his shelf, and that you will allow him ten per cent for selling it, and he will not hesitate to try it. If your honey is in sections, furnish him with a neat, cheap case, with glass front, to keep it in. If your honey is all extracted put it in quart jars, plain, tin tops, sealed by running a little fruit wax or beeswax around the tops when filled; the jars need not cost more than 6 cts each. Sell jar and honey for 70c, commission 7c, giving 19c per pound for the honey. If you have comb and extracted, the nicest way is to get a common tin top jelly glass holding 10 oz. honey; cut a strip of comb as deep as the glass and almost as wide; then fill up with extracted. A glass filled in this way needs no label, and will retail readily at 20 cents.

3¾ lbs. of comb @ 27c	$1 01
3¾ lbs. of ext. @ 18c	67
Commission 24c, glasses 48c	72
Total, per dozen	$2 40

Offer for sale none but new comb, and in extracted honey, none but good, well ripened honey, and you will find that your honey will sell. By giving to a grocer near home, you can furnish it in small quantities, as he needs it, and there will be little danger of candying on his hands. M. H. TWEED.
Mansfield Valley, Pa., Aug. 29th, 1878.

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I EXPECT letters like the following *should be* sprinkled along with the rest, but it is hard work to do it.

The last fdn. I got, I thought too thin, as it broke off near the top, in several franes. Your 75 cent smoker, I think after trial, a poor affair.
Irving, Kans., Aug. 14th, 1878. JOHN D. WELLS.

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OUR friend, J. E. Moore, of Byron, N. Y., has invented a very pretty pasteboard cap for glassed section boxes, that not only holds the glass in place, but makes an excellent protection for it, and also makes the label show to good advantage. The caps, if I am correct, cost about 2c, the glass, 3 or 4 more, and somebody has got to pay the cost of these, for each section: will consumers do it? The best way to tell is to try some in your market.

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THE following, in regard to the British Bee-Keepers Association, we clip from the *Gardeners Chronicle* (London).

The present year has, in many localities, been a most indifferent one for honey gathering, the cold weather of early June having thrown the stocks very backward; hence the number of exhibits does not equal some of the previous years, and heavy supers of 50 lb. and upward were entirely absent: but this may be partly ascribed to another reason, for experience has proved that large masses of honeycomb in one receptacle are practically unsaleable, and the example of America, and the teaching of experts in bee-culture, have taught bee-keepers to send their honey to market in small parcels, if they would find a ready sale. We noticed among the exhibits many small boxes of honey weighing about 1 lb. each, which soon found purchasers. These boxes were described in our columns, and introduced from America, by Mr. John Hunter; and for a sample shown on this occasion the judges awarded him a Bronze Medal. * * * * * *

Mr. James Lee was again to the front with his well-known first-class workmanship, and Root's small sections (exhibited by Mr. John Hunter) took the 2d prize. * * * * * *

The Bronze Medal for the 2d prize was awarded to Mr. R. Iliffe, for an apparatus for making comb foundation, which was in every way inferior to Root's (American) machine standing by its side, exhibited (not for competition) by Mr. Hooker. In the face of this indisputable fact we are at loss to see why the medal should have been awarded.

Heads of Grain,

From Different Fields.

INTRODUCING.

IN July, one of my neighbors told me that he would give me 2 young queens, if I would divide 2 of my hives. I thought that a good chance, and gave him $1.00 to cage them and put them in the hive. I left them in the cages 36 hours, then let them out, and, in 18 hours, I found both my queens dead in front of the hives. My neighbor then brought me 2 more young queens; he took out the queen cells which had been started, sprinkled the bees with peppermint, shook them off from one frame in front of the hive, and let the queen down with them (after sprinkling her), and allowed them to go in together. In four hours, I found my queens both dead in front of the hives. I then let them alone, and they raised queens for themselves. Why would they not accept those queens?

A. PINKERTON.

Marshalltown, Iowa, Aug. 12th, '78.

They did not accept the queens, because you did not watch them until they were accepted. We have introduced queens by the hundreds, this summer, and find the only way is to look after them in 10 or 15 minutes after they are let out, and again in a few hours or a half day. Queens, received all right at first, will often be balled in an hour or two. In that case, cage them, and then try again next day; and so on. While some can be let loose at once with safety, other stocks will not receive them under a week, and about one colony in a hundred will not receive a queen at all. After trying a week or 10 days, we use such a colony for rearing queen cells, and try the queen in another stock. No plan of introducing is safe, unless you watch your queen for a few hours after she is let out.

I had three swarms of black and hybrid bees in the spring; divided each once, making six; and have taken 367 lbs. from them this season, of clear honey. Under providence, you have our greatful thanks. D. TYRRELL, M. D.

Saxon, Ills.

FUEL FOR SMOKER.

Readers of GLEANINGS who use the Quinby Smoker, and have a difficulty in obtaining rotton wood for fuel, will be interested to know that common grey paper is excellent for the purpose. Cut it into strips about five inches wide, roll it up loosely enough to allow the smoke to pass through, and light the end thoroughly in the stove. When the paper gets well lighted, you will be surprised to see how much smoke you will have, and how long it will last. Economise during the winter, by laying away all the grey paper that comes from the grocery, and you will have a supply that you can rely on for some smoke. M. H. TWEED.

Mansfield Valley, Pa., Aug. 17th, 1878.

I received the smoker all right, some time ago; and it proved a fiery furnace for the sanctification of my bees, from angry passions. J. W. STOKES.

Seymour, Ind., May 24th, 1878.

CALIFORNIA.

I am a boy and a beginner with bees, this being my first season. I commenced with 8 colonies in old boxes of all sorts, no two alike; and have now 50 stands, besides losing 15 or 20 swarms, on account of not having hives for them. Do your bees swarm like that? They are making a great deal of honey now; but the very best strained honey is worth only 5 cents per pound, and comb honey from 7 to 10c; so, you see, I do not make much money.

San Diego, Cal., Aug. 3rd, 1878. WARE BOYD.

Your Simplicity feeder was received all right; but it will not work in my apiary. It is filled with Yellow Jackets all the time, but no bees. Can you suggest a remedy? S. C. DEGARMO.

Visalia, Ky.

Bless your heart, my friend, you are attempting to feed your bees when they are getting so much honey that they will not look at it. The remedy is to wait until there is a dearth of honey; it will be sure to come after the first frost, if not before. See Bee-Hunting in the A B C.

ENAMELED CLOTH FOR TRANSFERRING.

In transferring, I found a piece of enameled cloth, laid on the cushion, of very great advantage; as it lets the transferring sticks slip under very easily, and is very easy to keep clean from dripping honey.

Athens, Pa., July 28th, 1878. D. F. PARK.

The smoker came all right, and I was the best pleased man you ever saw. GLEANINGS has been worth $50 to me. The first thing I did, after getting the smoker, was to examine a young swarm that had come out the last day of Apr. I had filled the hive with old comb, and I found about 30 or 40 lbs. of the nicest honey I ever saw. J. R. HARDIN.

Rono, Ind., May 18th, 1878.

Please send me a simplicity smoker by mail. I used a clay pipe and tobacco to smoke my bees with, and in a few minutes, I felt as if somebody had me in an extractor, and was whirling me around.

WILLIAM S. MOREHOUSE.

Fairfield, Conn., July 22nd, 1878.

BEE STINGS.

In looking over the May number of GLEANINGS, we were not a little amused by Mr. Kirke's views about bee stings. The idea that bee stings would cause the amputation of limbs compares favorably, with the remarkable idea that drones lay eggs. However, we have heard of persons who lost their lives by the stings of bees; and, as friend Kirke says he gets some less than 2000 a year, it's not impossible that so much poison entering his system would justify him, in his views. That our friend may know the cause of the loss of our limb, we will say that it was caused by a sprain in the ankle.

Rome, Ga., May 20th, 1878. A. F. MOON.

I have just commenced to sell my honey, and am shipping small lots to Saratoga Springs, at 17c per lb., in sections. I don't know what extracted honey will be; perhaps 5c, but I have strong hopes of 15 or 20 cts for mine.

I have a genuine novelty, a 4 oz. box for candied honey, to be sold for 10c. I will send you one in a few days.

My 100 swarms will average me 100 lbs. to the swarm; but I have made but little increase as yet.

Hartford, N. Y., Aug. 15th, 1878. J. H. MARTIN.

QUEENS BY MAIL IN CANADA.

I could fill some of your orders for dollar queens in Canada, as they go to any part of Canada, by mail, for one cent each. My experience with Italians is this. Those beautiful yellow ones are not much better than pure blacks; only they are not inclined to sting much, and they will not run like a flock of wild sheep, whenever the hive is opened. But I can produce from them a race of bees equal to the imported. Get a pure Albino queen fertilized with a black drone, rear queens from her, and if you can get them fertilized with pure Italian drones, their progeny will be ¾ Italian, of course, and they will be equal to imported stock in every respect, color not excepted. ILA MICHENER.

Low Banks, Ont., Can., Aug. 12th, 1878.

ANOTHER BOY BEE-KEEPER.

I started in bee-keeping last spring and am 16 years of age. I bought a Langstroth bee hive of Chas. F. Muth, and it was two months before I got it, and the freight was $3.40; it weighed 104 lbs. Would it cost that much to get a Simplicity hive from your place? and would it give any better results than the Langstroth? I bought 5 stands of bees in box hives, and had 6 swarms, all in box hives. I have 1 swarm that came out June 15th, which has 26 sections all nearly ready to take off; we think that is doing quite well here. The rest of my bees do not work in the boxes at all; do you know what is the reason? and how will I make them work? They have got more than enough to winter on, and now have just commenced to work on buckwheat. They will work on it about a month and then be done for this year.

WM. G. VAN HOUTEN.
Deckertown, N. J., Aug. 6th, 1878.

It seems, from the above, that I am not the only person who has been complained of for being behind with orders this season, and for the excessive freights that have been charged. I do not know that the Simplicity hive will give any better results generally, but as it weighs less than half as much, while it contains the same amount of room inside, besides being less complicated to handle, I can but think it more desirable.

You can make the stocks which you mention, work in the sections, by hanging a frame of them in the lower story, or by raising a brood comb or two into the upper story; the former plan would be best so late in the season as buckwheat time.

WINTERING IN CLAMPS.

Has any one, to your knowledge, tried wintering bees in clamps, as Langstroth calls them? If so, with what success?

D. NORTON.
Galva, Ill., July 22nd, 1878.

Clamps were at one time used quite largely, and with good success too, I believe, but their untidiness, the labor of rigging them up every season, and the dampness that is pretty sure to trouble in clay soils, has led to their abandonment. A cave in a sandy bank, or a large well ventilated frost proof cellar, is generally preferred; but, of late, the chaff packing on the summer stands has seemed to please better, all things considered, than any kind of in-door or clamp wintering.

SCOVILLE'S WIRE LOOP, ETC.

I have 32 colonies in Langstroth hives, with Scoville's wire attachment for frames. The latter, I am well pleased with, but think I shall modify it, next year, according to an idea given me by a neighbor, Mr. S. F. Pratt. I will describe. Let the hive be a simple box without rabbet, nail stout *tin* rabbets from ⅛ to ¼ inch wide, on the inside; the wires, instead of being made in loop form, are to hook into this tin rabbet, and to be so bent as to give a support of from ⅝ to ⅞ in., thus avoiding the tipping or turning to one side, when the frames are loaded unequally on the two sides. You see that the frames, by this arrangement, can be adjusted to accommodate thick combs.

The plan is old and abandoned. Propolis will, in time, trouble very much, and you will kill bees badly.

BUILDING UPWARD, ETC.

The most of my bees are hybrids. Many of them have begun at the bottom, both in sections and frames in the upper story, and built upwards; I have a number of frames nearly filled in this way. What shall I do about it?

Use fdn. for starters, to be sure. This is one of the very troubles that fdn. is to correct.

SWARMING AND LOSS OF QUEENS.

In the spring, I had a colony in an old box hive. It sent off a swarm five or six times in succession, which was hived all right each time, and each time returned to the mother colony; the last time it came off, I gave it a frame of brood, and this secured it. Ten days afterward, the same performance was repeated by another swarm from the same colony; it was treated in like manner with like results. In about two weeks from the last swarming, I transferred the old colony. There was no brood in any form, and I found no queen; but it contained a large number of bees, and a heavy stock of honey. Is not this peculiar?

Not very peculiar; with natural swarming, it is a rather frequent occurrence for the last queen to swarm out too, or to get lost.

MOVING BEES.

Will any harm result if I remove my bees, when winter sets in. from their summer stands to a more protected place in my yard, and do it all at once?

Dixon, Ill., Aug. 12th, 1878. J. L. HARTWELL.

If a warm day occurs very soon after the removal, it is pretty sure to result in harm. Give them a permanent stand, and let them remain there the year round.

NEW USES FOR A SMOKER.

My cow comes home rather late in the evening, and mosquitoes are very annoying. But put a coal of fire in the smoker, fill it up with some well rotted, dry, basswood, set the smoker near you in the stable when milking, and good bye, mosquitos.

If the mildew attacks your grapes, just put a table-spoonful or two of powdered sulphur in your smoker, without fire, of course, and you can send the powdered sulphur like a spray all over your grapes and leaves, very rapidly and evenly, and in quantities so small as not to be noticed.

Exelsior, Minn. J. W. MURRAY.

FUMIGATING HONEY.

Won't some of Mr. Root's folks stop a minute, and tell me how much brimstone to use with a certain number of cubic feet. I have turned one lot of honey to a beautiful green shade, but I can contemplate the worms *now* with great satisfaction. I suppose the honey can only be extracted. I don't mean to ask questions often, for "I know. you know."

Brocton, N. Y., Aug. 7th, 1878. MARY SIMONS.

Mr. Doolittle says ¼ lb. of brimstone, for every 200 cubic feet of air which your room contains. If about a lb. is used in a moderately sized room, I think the comb will seldom be turned green.

UNSEALED HONEY IN SECTIONS.

I have taken off my first section boxes; they are certainly very beautiful, and I can hardly express to you the pleasure I experienced in taking them out, one by one. These 56 boxes came off from a hive that swarmed on the 27th of May, built all their comb in the lower hive, and the 2nd story was put on and ready to take off by the last week in July. I have been disappointed in getting section boxes, and have lost a good deal of time. I noticed around the edge of the section boxes one or two cells not capped over, and it does not seem as if the bees ever would cap it. In taking them off some of the honey run out. which would, in case of sending to market, spoil the looks and sale. How do you fix it? Could you lay them on a frame and let the honey drip off.

HENRY B. SHANE.
St. John P. O., Concordia Parish, La.

There will always be more or less honey, at the close of the season, that is not perfectly capped, and there are several ways of disposing of it. One is to use these dripping sections at home, or to sell them in your home market at a little reduction. Another is to uncap and extract the honey with an extractor. Mr. Doolittle advises storing such honey in a glass house, or some similar place, where the unsealed honey will be dried down so thick, that it will not run out of the cells even if it is turned over. I have never succeeded perfectly with the latter plan, but perhaps it may be done. The unsealed honey could easily be thrown out with the extractor, but it would be likely to soil the wood of the sections.

DO SNAKES EAT BEES?

One of my neighbors has a hive of bees with black queen, nearly depopulated. He thinks the trouble is due to striped snakes. He has found them several times coiled on the alighting board, but has not as yet seen them catch bees, though they will catch flies and bugs. N. A. MOSELY.

Cambridge, N. Y., Aug. 10th, 1878.

I should think it very likely that snakes, as well as toads, frogs, skunks, birds, &c., have a natural longing for the sweet morsel contained in a heavily laden bee, and, although all snakes may not have learned the trick, it would be wisdom to destroy all snakes found near the apiary. Who is to be the next culprit?

HOW TO MAKE BEES SWARM.

Now, Mr. Novice, I would like you to walk around the stair way, and tell me how to make my bees swarm naturally; for I have had bees for 5 years, and have never had a natural swarm yet. I found a bee-tree in 1869, transferred the bees into a hive, and kept them three years, and never had the first swarm from them. Last winter I purchased one hive of black bees and this spring two hives, one of Italians, and one of hybrids. Now, swarming time is nearly gone, and not the first swarm yet. I see in GLEANINGS that nearly all bee-keepers have bees swarming and that is what I don't understand. You may say I take too much honey; I do not think that the cause, for from the best colony I have only taken a little. I know it has plenty of honey, for I can lift 200 lbs. easily, and it takes me at my best to raise the hive.

Now, Mr. Novice, I would like to have my bees increased, but don't wish to increase them by artificial swarming, until I study GLEANINGS a little longer. W. S. CANTHEN.

Pleasant Hill, S. C., June 10th, 1878.

It seems to me, my friend, you would better go and help some of the brothers, aye, and sisters too, that cannot keep their bees *from* swarming. Your experience is a little singular, and I am sure it cannot continue thus very long; but still it is a very doubtful way of building up an apiary, to wait for natural swarms, when artificial ones can be made so easily. Perhaps your hives are too large; if you get a hive so full of bees that they can hardly get inside, then contract the hive, and feed if they are not getting honey, they will be pretty sure to swarm very soon, or at least such has been my experience.

CANDY FOR WINTERING.

Now, what I want to know most is, if I had a good sized swarm Oct. 1st, with good combs and no honey, in what way should I place the candy and comb frames to have them do well? ELMER S. GOODRICH.

Lebanon Springs, N. Y., Aug. 6th, 1878.

I would contract the space they occupy, with chaff division boards, until they cover all the combs; I would then remove two of the central ones, and substitute candy frames, having a frame of nice, empty, worker comb, between the candy frames. Now, these two frames of candy would last almost any colony all winter, and, with a winter like last winter, they would rear brood and get stronger from month to month; but I would think it safest to look at them, as often as once a month, if the weather favored. If the weather is cold, comb may not be built in place of the candy; and in such a case, I would remove the candy frames, when they are nearly empty, and substitute the combs. Never allow a vacant space in a hive, during very cold weather.

MOVING BEES SHORT DISTANCES; A NOVEL MODE OF PREVENTING LOSS.

A neighbor of mine had twenty-five stands of bees which he wished to move about twenty rods. He moved the bees and placed shingles and bushes in such a way that it bothered the bees to get out, and, of course they stopped to see what was the matter. The bees were moved all at one time, except one swarm, which was moved a few nights before the rest. Not a half pint of bees returned to the old place. I think the best time to move bees is the last of July, if it is dry so that bees are getting no honey; then but few bees are flying. F. P. CLARK.

Nelson, O., Aug. 10th, 1878.

This plan may answer invariably, but I am inclined to doubt it. During a dearth of honey, in July or Aug., would, I think, be a good time to move bees, if they must be moved during the summer time. Will those who have bees to move as above, please test the plan and report. Please accept thanks, friend C., for both suggestions.

BEE CONVENTION.

Our annual convention meets in this city, Tuesday, the 1st of Oct. next, at 10 A. M. I would like to make it known through GLEANINGS.

W. WILLIAMSON,
Sec'y of Central Bee-Keeper's Association.

Lexington, Ky., Aug. 7th, 1878.

"OLD MAID" QUEENS.

I asked your opinion last fall about a queen that did not lay till after 20 days old. She has now the strongest stock of bees in my yard, and has given the most honey, 120 lbs. The upper and lower story are quite full at present. She is a hybrid queen. DANIEL WRIGHT.

Violet P. O., Ont., Can., July 29th, 1878.

The above illustrates what I have often told you; do not get out of patience, even if a queen does not lay when 10 days old. Try her until 20, and, if she is a fine looking one, even until 30 days old, before you destroy her.

Enclosed is $1.00, for which please send me a smoker. I have a colony that has got past my "navigation." H. P. BROWN.

Clinton, Mo., Aug. 7th, 1878.

QUEENS BY MAIL.

There is one thing which we hope all the bee-papers will take hold of, and all the agricultural papers, and as many of the political papers as we can get; that is, queens by mail. Of course, it is a great injustice to exclude them, and is done for the benefit of the express companies; but nothing but a combined and determined effort will help us. Bring the matter up in the next issue. Now is the time to work. The election comes off this fall, and the bee-keepers have become quite a power in the land, and have numerous friends. If we can do nothing with the present congress, we can have a voice in the next one, if we try. J. C. & H. P. SAYLES.

Hartford, Wis., Aug 4th, 1878.

BUYING "PATENTED" HIVES.

I am a new hand in this business, and, of course, have a patented, anti-swarming, moth-proof stand, in consequence. I have no queen and but few bees, but plenty of moths in my hive. I think it possible to save it yet, if you can send me immediately a good queen, for which I enclose $1.25. I got the stand before I read your GLEANINGS; that's my only excuse. Please make haste and oblige

Clinton, Mo., July 31st, '78. J. W. KEIL.

QUEENS BY MAIL.

I have just this morning received August GLEANINGS, and note the destruction of our queen rearing business. I shipped you several days ago, 14 queens; do what you think right about them. I had promised myself to mail you 100 this month, but alas! "The best laid schemes of mice and men, &c., &c." Certainly, if all the bee-keepers in the land move in the matter, they can bring enough influence to bear upon the P. O. department, to have a reasonable ruling made. Speak about it, and let us pour in petitions from north, east, south and west, which must have some effect. This is a serious matter, and something must be done.

Terry, Miss., Aug. 5th, '78. R. THOMSON.

I agree with you, friend T., that something should be done, but it will probably take both time and patience. Friend Alley writes us that the trouble came about by some person's sending a hundred or two bees by mail, in a pasteboard box; the box of course was broken, and the bees got into the room and stung several of the officials. If such is the case, and I have no doubt of it, can we blame the department very much? This is a world of careless and thoughtless people, as some of the mail packages we open bear ample evidence. Careful people are at a premium.

The queen came to hand Tuesday night. I had my hive ready, and hung the cage in it after 9 o'clock, &c., &c. I liberated her Thursday morning, and was very much disappointed in her appearance; she had the *Dadant spot* on the tip of the abdomen. The bees were all dead but 2 and the queen seemed very much fatigued. I examined her every day that week, and she did not improve much; Monday she was laying and had improved very much, in size and color (a dark leather). On the whole I am well satisfied with her.

G. R. HUFFMAN.

Stewartson, Ill., Aug. 7th, 1878.

The above queen was sent before the advent of the new bottle cages. I have given the letter for the benefit of those who scold about the looks of a queen, when they first get her.

All the goods that I have ordered from you have come all right. The 6 smokers have all given entire satisfaction; there has been not one word of complaint from any of them. Many thanks, friend Root, for the smoker you sent me, as a premium.

Bees have done splendidly this season, up to date. The honey is all dark, being principally honey dew.

GEO. W. KENNEDY.

Carrollton, Mo., Aug. 6th, 1878.

I can not help telling you how proud I am, to see young Italians flying out in 30 days after I got the queen. It is my first effort and may puff me; hope not. H. LITTLE.

Atalla, Ala., Aug. 5th, 1878.

The Italian queen you sent me was introduced July 6th, disclosed her progeny July 30th, and proves to be pure stock. I purpose Italianizing next spring the 25 colonies I have now, so you can look for some orders. A. B. THOMPSON.

New Comerstown, O., Aug 7th, 1878.

"CORNER STONE."

The queens came to-day all right. I think that you deserve a premium on putting up queens for shipment. For the enclosed $6,00, please send me 10 lbs. fdn. And keep the balance as a premium.

Brighton, Mich., Aug. 2d, 1878. C. THOMSON.

Well now, that is kind of you, friend T., but as the cage was given me for the good of the people, I hardly feel that I have any right to the 50c, which you so generously tender me as a premium. In our Sabbath morning Bible class, we have for some time taken up a collection, but after buying our lesson papers and gospel songs, etc., I was obliged to ask the boys what we should do with the money remaining. Some of them suggested that it should be used for a corner stone for the little chapel which the Bible class may sometime own. I guess we had better have the 50c for a corner stone of a fund to do good with, and consider that it belongs to us all; boys, what shall we do with it?

HOW MUCH DOES COMB FOUNDATION "PAY," AND OTHER QUERIES.

What is the difference between frames with fdn., and frames without fdn., financially considered?

It is a pretty hard matter to determine in dollars and cents, as there are so many conditions; but, as a general thing, I should say that one who is building up an apiary will produce twice as many colonies by the use of the fdn., as he will, if he uses simply empty frames; besides he will get all perfect worker combs.

Please give us the pronunciation of those letters, "fdn."; neither Webster nor Worcester give the pronunciation or meaning.

I supposed I was the one who coined the abbreviation, "fdn.," to avoid spelling comb foundation in full every time it was to be written, but my friend, Perrine, says he used it in writing a letter me, before I ever put it in print. Although I do not recollect it, he may be right. The whole matter has been invented since the dictionaries were written. See A B C book. I do not know how you can pronounce it, other than to say "foundation."

Of the glazed cloth which you recommend to cover the frames in hives, please tell us which side goes down.

Use the glazed side next to the bees, *of course*.

My bees (black) in box hives have filled their hives. I placed caps on top, but they will not work in them. They have been lying outside for a month doing nothing. I have 4 stands in frame hives; they have remained outside but very little.

I send you a circular of a patent bee gum. There is a man canvassing Webster, Ky., selling farm rights at $10.00. If it is a patent, please tell us so. He claims to have a special right on the movable division board. The gum is a nice thing to look at; it has a double bottom which gives ventilation through wire cloth. This double bottom is also a moth trap, drone and robber trap, also a trap for the inexperienced. C. BATES.

Beda, Ky., July 25th, 1878.

You have answered the last question yourself. Any man who goes about selling rights for $10., or any other price, for using division boards, ventilators, or moth traps, is either bad or ignorant, and the best thing you can do is to let him alone. Starve him out, and make him go to work. I feel guilty, for taking so much space to notice this old swindle, month after month.

OUR FRIEND LANGSTROTH.

Mr. Langstroth remains quite feeble; he has not been off the place but 3 times in 18 months.

Oxford, O., July 26th, '78. H. C. COWAN.

MOVING BEES SHORT DISTANCES,

I notice a great deal in Aug. GLEANINGS about moving bees a short distance. Why not move them a mile or so, and leave them a day or two, and then return them to the new location? it certainly would work and not disturb the honey gathering but little.

Clinton, Mo., Aug. 5th, '78. M. L. BONHAM.

Your plan will do very well, but I did not mention it on account of the expense. Where we have to hire such work done, it counts up; but with those who live in the country, it might be the simplest way. They would need to stand 2 or 3 weeks in their new location, or they would remember their old grounds.

WHEN TO ITALIANIZE.

Had 6 swarms last spring; increased to 18. Have taken 200 lbs. box honey. When is the best time to get Italian queens? spring or fall?
Montrose, Pa., Aug. 2d, '78. **Geo. S. Frink.**

By far the most economical time to get queens is in the fall, because it matters not then, even if your hives be a short time queenless. There is not then, the rush and hurry of spring time, and queens are also much cheaper.

THE KING BIRD AGAIN.

I notice in Gleanings for August that Mr. T. T. Waite, of Berea, Ohio, affirms that the king bird catches bees, and, when gorged, ejects the substance of their bodies. I have frequently witnessed this habit of the bird, during my twenty years of observation and experience in bee-keeping, and as proof of the truth of the statement, I herewith enclose one of the "balls" or "wads" of compressed dead bees, as they were cast out of the stomach of the bird. Your advice to "kill the birds" is proper, and the only way, I believe, to dispose of them.
Marcenus Wright.
Middleville, Mich., Aug. 2nd, 1878.

The wad enclosed was a dried mass of wings, legs, and the horny shell that covers the body of the bee. I feel loth to give any advice that will result in encouraging cruelty towards the birds, and would be glad to hear any word of defense that can be made for the poor king bird.

A WORD IN FAVOR OF FDN.

I was rather prejudiced against fdn., until Isaac Hay sent to you for 15 lbs. He brought me 2 lbs., and wanted me try it. The result is, I have ordered 150 lbs. of you, for my neighbors and myself, and would recommend it to all bee-keepers.
Somonauk, Ill., July 8th, 1878. **Frank Bliss.**

Those 6 queens I bought of you all proved to be pure. The 10 lbs. of comb fdn. gives general satisfaction. **John Krippner.**
Oakland, Wis., July 29th, 1878.

Bees are nearly flooding us with honey; 67 lbs. from one hive in 10 days. **S. S. Butler.**
Los Gatos, Cal., June 27th, 1878.

I have used the $150 worth of comb fdn. which I received of you about a month ago, and am more than pleased with it; in fact, it is a necessity that I cannot hereafter dispense with.
Onawa, Iowa, July 29, 1878. **August Christie.**

CRIPPLED QUEENS.

I thank you for your kindness in offering to send me another queen, but would not exchange my "cripple" and take the chances of introducing another, as she is now doing nicely and is purely mated.
Bethel, Conn., July 26th, 1878. **S. H. Hickok.**

Several have expressed fears that queens with a leg or wing minus might not prove serviceable, but as they have done just as well, so far as we can see, in our apiary, we have not hesitated to advise giving them a trial. I do not know how queens become crippled thus, unless it is in introducing, either in my hives, or after they reach you. As it is not noticed until the queen is introduced, I presume you often think she was sent you in that condition. I have never knowingly sent out a crippled queen, without stating the fact.

How much superior are imported queens to Americans raised from imported stock? Can an Italian be introduced at this late season?
Almeda, S. C., July 27th, 1878. **Wm. O. Holmes.**

When we first introduced imported stock into our apiary, there was, at once, a marked difference in favor of it over our home bred Italians, that were a great many generations removed from the stock first imported. At present, I am much inclined to think that the greater part of the dollar queens we are sending out will prove just as good as the Imported queens themselves. The principal reason why I insist that the queens I buy should be reared from an imported mother is that the stock may all of it be very recently from Italy, so as to preclude, as far as possible, sending out either hybrids, or the very yellow stock that is generally agreed to be less valuable as honey producers, than the original dark natives. You can Italianize at any season when bees fly. The fall months we consider the most *profitable* season in which to do it.

DOES THE QUEEN DESTROY THE QUEEN CELLS OR DO THE WORKERS DO IT?

I opened a hive the other day, and found two queen cells. By referring to the record, I found that they were about ready to come out. In the afternoon, I cut out one cell, and noticed that the bees were biting away the end of the other. I laid the cell on a board, fixed up the hive, and went and prepared another hive for the cell cut out; but when I found it, it was empty, and six or eight feet from it, I found the queen. I took her and put her in the hive without the cell. Now, that queen did not destroy the other cell left in the first hive, but the bees did, which proves to me that the queen is not born with "murder in her heart and blood in her eye", as our book makers claim. **E. B. Southwick.**
Mendon, Mich.

You are hasty, my friend. We book makers recognize that "two swallows do not make a summer." In the case you have given, very likely the workers tore down the cell; but I have many times seen a queen start directly for the other cells and tear them open, just as soon as she was hatched. Sometimes she will simply bite a hole through and pass on, allowing the workers to come and finish up the job; at other times, she will bite into the immature body of her rival sister. It is said that they sometimes sting the inmates of the other queen cells, but I have no proof of this. The young bees seem to have a great propensity to tear open any queen cell, after it has been injured either by a queen, or by cutting in taking them out. I have rescued queens where the cells had been torn open, and had them hatch in the lamp nursery all right; from this, I infer that the queen often does nothing more, and that it is the workers that pick and pull out the white chrysalis, piece by piece. At other times, the workers seem to do the whole work of tearing down the cells after a queen has hatched.

THE $25.00 CHAFF HIVE.

Now, I would just as soon go into the Growlery as anywhere, but before you put me there, just look over your medley of chaff hives, and it may be that you can make one good one from all of them, and perhaps we may all of us get $25.00.
W. S. Daniels.
Hubbardston, Mich., July 26th, 1878.

In all the plans for chaff hives that have been submitted, I find nothing so simple and cheap as the one I gave you in the first place; neither have I seen any suggestions that I would add or adopt. Some of you may think me obstinate, but I have given all the plans submitted, careful thought and consideration, and this is my candid opinion.

Our Homes.

Charity suffereth long, and is kind.—1 Cor., 13; 4.

FROM the July No., you seem to have got into hot water on account of multiplicity of business. I would suggest to you two rules which have, perhaps, suggested themselves to you already: do not attempt to fill any order not clearly expressed, which you do not understand yourself, or which was evidently not clear to the writer, and make some clerk responsible for all orders filled. It should be his business to see that nothing goes out without being compared with the order for it. My own orders have all been satisfactorily filled, in all respects; but in an apiary, most persons order only when the necessity is apparent and urgent, and if the goods are wrong, the time for use has gone by before they can be made right. J. H. PEIRCE.

Dayton, Ohio, July 5th, 1878.

Many thanks, my friend, for your very kind and timely suggestions. I had begun something of the kind but the very difficulty you suggest, was the one that stood mostly in the way of the first part of your advice; namely, that most bee-keepers wait until they are in urgent need of the goods, and then order. It would be quite an easy matter to say, as many do, "If they will do this, and then make mistakes in ordering, or give incomplete directions, let them take the consequences, and learn better". Others will say, "It is just good enough for them", and there let the matter drop.

A young man in our town of intemperate habits, lately, while intoxicated; hung himself, and was discovered by his wife after he was stiff and apparently lifeless; but, by prompt measures, such as are used to restore a drowning person, he was restored. In a few weeks he became intoxicated again, and started out to get away from friends and home, that he might make surer work of the business. The case was one which illustrated so powerfully the way Satan obtains dominion over a man, that I used to relate it, to elicit the various opinions in regard to the matter. One of our influential citizens, gave it as his opinion, that the best thing that could be done for him was to let him hang himself, and get out of the way; and the sooner he did it, the better. A Christian woman, who held quite a different view of such matters, asked me if I would not better call on him. I had before this decided on so doing, but from the way in which he had met all advances toward acquaintance, I was rather doubtful about the success of the mission; business also was so pressing that I feared the "Growlery" department, should I take many minutes, even to save a fallen brother from suicide. After it was told me that he had attempted it the second time, I decided to go, even if orders were possibly delayed a little.

I prayed God would open a way for me to get behind that reserve he seemed to manifest, and to indicate to me in some way whether it was really a duty of mine, to try and rescue such unfortunates. I found him in his door yard, and the moment he saw me, he came forward with a pleasant smile that I could not at first account for. How loth are we to believe that God answers our prayers, even though we profess to have faith in Him. He soon told me all about his trials and temptations, especially after I had talked with his wife and the children, and soon it came out, that he had been trying, for several days, to get up courage to call on one of our ministers, and just as soon as he caught sight of me, it occurred to him that I would go with him, which you may be sure I did most willingly. While there, we knelt in prayer, and he was asked to join. After some hesitation, and breaking down, he said he could not pray unless he could do it in his mother tongue, the German language. Although I could not fathom the words, I know that his humble prayer was acceptable to his maker, and that he is now one of our most regular attendants at the young people's prayer meetings, and at the Bible class.

Now this man knew that, as soon as he touched drink, Satan at once suggested suicide, for he told me as much; and he knew his life was not safe a minute, if he trifled with the poison. He had also considered that a wife and two children were depending on him for support, yet with all this before him, he had again and again yielded. Shall we have charity, love, and patience for such erring brothers and sisters? or shall we let them go, and tell them it is good enough for them?

Perhaps my illustration is rather a strong one, but it is bright and vivid in my mind, and will serve our purpose. Shall we go out of our way to serve those who have brought trouble on themselves by either carelessness or wilfull wrong doing? or shall we let them take the consequences? In considering the greatest good to the greatest number, it may many times be best to allow punishment to fall on the offending party, for the sake of the wholesome lesson it may prove to others; and where the offence is an oft repeated one, such as persistent intemperance, or things of like nature, I think it is often the kindest thing we can do to the offender, to let him go to jail; often the well meaning, but inconsiderate friends, who stand between the offender and justice do a positive unkindness. However, this state of things will seldom apply to cases of business, such as friend P. alludes to, and we will now get back to our subject.

A great many have ordered odd sizes of section boxes, giving dimensions all correct, but forgetting to tell us which were the tops and bottoms, and which were the sides. The orders were generally accompanied with a request not to delay one minute, and sometimes the parties wrote that they had borrowed the money to send for them, and unless received forthwith the honey season would be passed. Where the distance was not great, we sometimes sent a telegram for information, but this way is rather expensive. To await a postal card might result in having the goods sent too late to be of any use. It would have been easy to say, "Well, I have done the best I can, and you must take the consequences". The way I generally did, was to hunt for former correspondence or orders, and see what size frame they used, and then figured it out. In several cases, I took the risk of guessing; and, as I guessed right in the majority of cases, I deemed it better than to choose the worse evil of delay, always trying to get the greatest good. for the greatest number. In the matter of extractors, the trouble is, if possible, a worse one. Hundreds of orders come something like this:

“My frame is 10 by 15 inches. I want it to hang the same as it does in the hive. Please do not delay, as my hives are full to the last drop, and basswood is just coming.”

Very often, the man lives in Minnesota or Texas, and the express charges on a return of the machine would be fearful. Although past experiences in such cases have, some of them, been sore ones, I guess the 15 inches must be the top bar, and that the projections are likely about ¾ of an inch, and send the machine along, directing the clerks to explain the matter fully, and pass on to the next order. Generally, I hit right, and our customer apologizes for his carelessness, and goes on rejoicing. If I do not guess happily, much depends on the individual. Some will turn the frame on end, if it will not go as they wished it, and pleasantly say it does not matter much; others will scold some and let the matter drop; but, occasionally, one will take me to task most roundly, and declare directions were plain enough, or that I should not have sent the goods until sure of what was wanted; and sometimes they will all come back by express, with the charges all thrown on my shoulders. At such times, I feel a great disposition to declare I will accept the rule given by friend Pierce, at the head of this paper; but when others thank me for having done the very best I could, I feel sorry for the careless ones, and decide to do as I have done, and bear harsh words, when they come, as philosophically as I can. A great many, in ordering the Simplicity hives, call them Langstroth hives, and nothing more, meaning that they want the Simplicity form for the L. frame. Without asking further questions, we have been filling orders with our usual hives, and I know of but one case where our customer was disappointed, until the friend sent us an order whose letter appears below:

> If it was not for the expense, I would ship immediately back to you. Do you suppose that I would send a man an Alderley bull when he wanted an Alderley cow? As for frames I do not care a continental, fit or not fit. When I send for anything, I expect to pay for it; then I want what I send for. If it does not suit me, it is my fault. If I send anything to my customers which is not what I represent, I would not blame them one bit, if they sent it back and charged me with all expenses. I do not expect to go into the bee business, but am taking it up merely as a fancy, and am desirous to have 1 or 2 hives of each kind that is made; I have already ordered the American, Quinby, Doolittle, and others, more for a show than profit. W. H. H.
>
> N. J., July 27th, 1878.

Now, if I could tell just what sort of a person a man is when I receive an order from him, it would make it easier. Sometimes, the writers tell us to amend or change an order, where they are new in the business, and I take the liberty of doing so very often, where I judge I shall get thanks for so doing. In cases like the above, of course, all I have to do is to desire them to send in bill for damages or disappointment. I do not blame anybody, for it is only a condition of things, that is, so far as I see, unavoidable.

It is no easy task for me to have charity at all times, I assure you; for not only am I naturally disposed to find a great deal of fault with those about me, but it is quite soothing to my feelings, to have a pitched battle occasionally. A rather cool sort of a friend (I think he must be a friend, even if I can't agree with him), takes me to task, and I guess cuts pretty near the truth, as follows. The case was this; just before government threw queens out of the mails, he ordered a couple; they were thrown out in Chicago, and he was notified that if he wanted them, he would have to have them sent by express. Instead of doing this, he allowed them to die there, saying it was my business to forward them, as I guaranteed safe delivery. I could not get them back, as they were addressed to him. As I saw it, he refused to pay 25c, to save me $2.00. When I guaranteed safe delivery, it was with no thought, that queens might suddenly be thrown out in this way, and therefore I did not consider myself responsible for their loss, under the circumstances. I wrote him as much, but a few days afterward, as my conscience troubled me, I wrote again. The purport of the two postal cards, you may gather from his letter.

> Yours of the 26th was duly received. I should think, from the tone of it, that you must have dictated it just before you had your dinner. You know that it is said, “A hungry man is always cross.” I suppose that we men are some like the honey bees; for instance, you take a bee and give him a good square meal of honey, and you can handle it with impunity; you can even stroke its back with your finger; but how different it is with a lank and hungry fellow! if you try to stroke its back the very instant that your finger comes in contact with the business end of it, chain lightning passes off in a white heat.
>
> You say I should have sent at once to Chicago for the queens and had them forwarded by express if I wanted them. Well, in the first place, I didn't buy queens in Chicago, I bought them in Medina; in the next place, I wanted them or I should not have sent for them. Again, you say that you are losing very heavily by the action of the P. O. department (there, that is a key to the tone of your postal), and that you are not in any way responsible for it, or the queens. Friend Root, did you ever hear it said, that there is a very tender and sensative nerve running from a man's head to his pocket, and when a little money is taken from it without any equivalent, that it gives the nerve a twinge, which affects the head in proportion to the amount taken? Now, I think that the P. O. department has caused quite a lump to be taken from your pocket, and it has given that nerve a very severe twinge. Well, I can truly say that I am sorry for you; I never feel like rejoicing over another's misfortunes. Your postal of the 29th is written in a very much better tone, and I think that the nerve spoken of above is getting a little more quiet.
>
> Now, as to those queens, I wish that you would read the enclosed advertisement and tell me what guaranteeing safe delivery means. If it means safe delivery to the purchaser, then I can not see that I am to blame. If it means safe delivery to the mails or express, then I am to blame, and will pay all damages cheerfully, if you will tell me what they are. Now, I am going to leave the matter with you for a decision. I want two more queens, and if you will send them to me by express, and say that you want pay for them, I will send you the money by return mail. Of course, I expect to pay express charges. C. T.
>
> Brighton, Mich., July 31st, 1878.

Do you not see how the better spirit conquered? I sent him the queens, and told him his letter was worth the $2.00; do you not agree with me?

Now, in regard to the hands who make blunders; many years ago, when mistakes threatened to be the ruin of my business, I talked with the boys and girls, in regard to standing the consequences of their mistakes. Some thought their wages were not enough to do this, and to get at a fair and pleasant manner of facing the difficulty, their wages were advanced a little. For quite a little time after, there were no mistakes or breakages, worth mentioning. After a while, when the matter got to be rather an old story, they felt it pretty hard to hand over the money to make good an error, and I too felt it pretty hard, and so the matter was dropped. Sometimes, it would be pretty hard to decide where the blame really belonged, and in pity for them all, I paid it myself. Was this a mistaken kindness? Perhaps it was.

Quite a number of cases have come to hand like this:

"John, you omitted the screw driver in Mr. P's order."

"Oh, I am sure I did not, for I remember very distinctly putting it in the box."

"You must be mistaken, for he certainly would know if it were there."

You can imagine the look of pain that comes over the boy's face when he is asked to pay the trifling postage, to teach him to remember in future. Two months afterward, came the following:

> When I received the goods of you last May, the screw driver was carelessly overlooked, but afterwards found. I hereby remit the price, 15 cts.
>
> N. E. PRENTICE.
>
> Castalia, Ohio, July 25th, 1878.

Again; a customer writes that his sections were short so many sides. The circumstances were such that I wrote him I felt sure he had made a mistake somewhere, and asked if it was not possible that they had been left where children had got at them, or something of that kind. I did this, because another friend had taken offense when I suggested, perhaps not quite so carefully, that *he* might be mistaken. Here is the answer:

> The package of sides for sections came duly to hand; I shall now come out even. In regard to the mistake, I guess we both made one. You certainly sent me the odd tops and bottoms, as I did not take them out of the box till they were put together and they were out of the way of *children*; but since receiving your card, I have made another count (with pencil and paper this time), and find that I had my number of boxes put together. I counted them hurriedly before, and did not see them all. So I have 90 sections to pay you for and postage 54 cts.
>
> N. N. SHEPARD.
>
> Cochranton, Pa., June 24th, 1878.

I might multiply these instances; the two letters I have given, turned up just as I was writing. Do you see the moral here? We all make mistakes; the very best man I ever knew, will make mistakes and do careless things, now and then. Training will do a great deal, and careful watching will help one to get over these failings, in some degree, but still they cling to us, and convince us we are but human.

When a mistake turns up, and it is difficult to decide where the blame justly belongs, shall I run the risk of letting it fall on an innocent person, or shall I bear it myself? I confess I feel better and sleep sounder when I bear it on my own shoulders, even if I do have the blues at times, and feel that my business must be wrecked, if I continue to bear the faults of both parties. Perhaps this sounds a little like boasting of my own liberality, for I presume, when we get at the real truth of these things, it will be found that others are just as liberal and self sacrificing as we are; but the point I wish to inculcate is, that we need to make up our minds to bear a little more than our share of the burdens of this world, and then we shall get just where God can bless us. When we get right there, kind friends will be seen coming forward, and saying, "Here! you are doing more than your part; let me foot this bill." In more than one instance, have I known customers to do this, and my employees have also insisted more than once, upon standing between me and loss. It is the same spirit which we see manifested where one of a number of shop mates is sick or gets hurt. A few months ago one of our men had his hand taken off with a buzz saw. As soon as it was known, there were pale and sober faces all about, and, in a few days, without even a hint from me, a card was up over the time clerk's desk, with the amounts marked down that each one would give. The list grew, and finally it came down to the little errand boys, of 10 or 12 years old. I will give Mr. O. 50c, and I, and I, said they one after another; and when Saturday night came, although it took from one-third to one-half of their whole earnings, the amount was promptly handed over. One little fellow came to see him one morning, and asked if he would not like some *beets;* back he sped, and a basket of beets and lettuce from their own garden was his offering. Could it be said of these hands, that they were intent only on looking after number one? and do you see how hard it is to demand of those who are so generous and liberal with each other, that they pay for errors, when it is at least somewhat doubtful whether they are at all to blame? Poor, careless, heedless humanity! With all your faults and weaknesses, there is, away down deep, something noble and grand—something besides self, and selfish gratification. By no means, would I encourage a spirit of letting things go—a spirit of listlessness, or lax indifference.

On our honey farm, is a small stream, and across it, at a convenient point, has been built a dam, to be used in the summer time for bathing and boating, and in the winter for skating and ice. One afternoon, the boys proposed to build this dam, on their own time, if I would consent. Soon 40 or 50 of us were at work with axes, spades and hoes; a huge elm tree was chopped down and, by the united strength of many hands, was rolled into place. All passed off happily, until some of us became tired, and not being under the restraint of the regular working hours, we turned the work into sport. As is often the case, some of the sport was a little rough; anger took the place of merriment, and I was at once sobered and pained by hearing my boys use wicked oaths, as they reproved each other. If any of you have ever undertaken to reprove all the profanity you may hear, and have made it a deep, earnest study, to devise a way that will not offend, but do good, then you can realize with what sorrow, one hears such words from those near and dear to him. A pleasant talk with the offenders, afterward, had the desired effect with most of the older boys, but, with some of the others, pleasant words soon came to be an old story, and they, without scruple, finally swore right in my presence. I prayed for them, and that God would guide me, in curing the evil, in a way that would do them most good. The answer to my prayer was this. I told them that I should suspend from work for one week, the one who was next heard swearing; after that, the penalty would be two weeks, and so on, until they lost their place permanently. Two were out of employment very quickly; after talking the matter over with them, they assented to the justice of the course, and one of them set earnestly to work, to reform a habit that had almost got to be a second nature. Smoking while at work in the lumber yard was cured in a similar way, and although a few of the hands left, the most of them agree with me, and have asked for their places, as soon as trade opens again for next season. A reform of a similar kind has been commenced with the mistakes and blunders in shipping; but, as these offenders have no intention of offending, it seems a great deal harder; I have given much pain, and have, I fear, many times wounded unnecessarily; but for all that, it has, on the whole, done us good, and wakes us up to the stern duties of life. Now, may God bless you all, both customers and employes, and may he give me the wisdom I need to stand between you and mete out justice to all, and patience to bear my own share, or more if need be, of the losses that are sure to come; above all, may He give me firmness and decision, tempered with kindness, to insist that those who are inclined to be lax, to procrastinate, to be indifferent and shiftless, do their duty, for their own good, as well as for the good of their fellow men.

STRAINING HONEY, AND QUEENS THAT GO "VISITING."

I SAW in June Gleanings a letter from friend Kellogg, in regard to straining honey; I am very thankful for it but do not like the plan for three reasons: first, it is too tedious; second, it injures the flavor of the honey; third, it darkens it. I will give you my plan, as I have never heard of its being used by any one else. I have a 45 gal. barrel, nicely waxed, with one head out; this barrel I set on a stand about two feet high, with the open end up, and a honey gate put in about two in. from the bottom. I pour in honey, until I get it level full, then skim the top nicely and draw off at the bottom, and then repeat. You know all particles of comb will come to the top, and anything that will not rise will settle to the botton; so you draw pure honey. All unripe honey will rise, so you can grade your honey, if you wish. As I let my honey mature in the hive, I have considerable capings; these I put in my wax extractor, and let them drip; I also pour the skimmings from the barrel in, so there is nothing lost.

I had two hives that swapped queens late last fall, or early this spring. They stood, one on the south side of a small tree, facing west, the other on north side of the same tree facing east. Both had their queens clipped, and one was pure Italian, the other black. The first I knew of it was this spring, when I saw black bees with the Italians, and opened the hive, and found as stated above. The hives were of different colors. W. B. Collins.

Arrow Rock, Mo., June 13th, 1878.

Your plan of straining honey, though not strictly new, is a very good one. Should the honey contain particles of about the same specific gravity of the honey, your plan would not take them out as effectually, as our cheese cloth strainers.

I have known hives to get their queens swapped in much the way which you mention, but supposed it must have come about in some strange way while extracting. One queen might get out of her hive and get into the other possibly, but how should both do the same thing and be accepted? Bees swarm out of their hives and go back, oftener than we know of, and I suspect the change must have come about in some such way.

BUILDING UP COLONIES IN THE FALL.

AS we have always had a great number of inquiries every fall, as to how late bees may be fed, colonies built up, queens fertilized, &c., I have thought best to anticipate a little. The postal below, which was sent us the last of Nov. of last year, will answer the question about feeding.

On the 15th, I united two swarms of bees on empty comb, and fed syrup. They now have 8 Langstroth frame combs filled with syrup, and capped, except a good lot of brood which they have started. I have supplied them with flour; can they raise brood now? This swarm now has your hybrid queen. Would a queen raised now venture out on her wedding tour? and, if not now, would she in the spring? S. W. Morrison, M. D.

Oxford, Pa., Nov. 29th, 1877.

We have raised as fine queens in October, as any we ever had; but they were reared in strong colonies. I do not think it would be well to try to do anything with them later, in this locality. Colonies that are to be brimstoned, if any such can be found, will make excellent stocks by uniting and feeding, and it may be done at any time during this month or the next, or even in Nov. Give them the best combs, contract the brood apartment, and feed regularly every day, until they have a good lot of brood, and an abundance of *sealed* stores.

IMPORTED QUEENS.

The imported queen you sent me on the 13th inst., I received on the 14th, at 2 o'clock P. M., all right. I introduced her with success, and she was depositing eggs in the cells, in 6 hours after releasing her. I am much pleased with her, for she is really a beauty. T. M. Quinby.

Edenton, Ohio, June 17th, 1878.

Our imported queens do not often lay, under 2 or 3 days; so this was something unusual. Perhaps I may here express my regret, that so many of our friends have been delayed on imported queens, but the demand has been so sudden, and so much greater than I expected, that I was not at all prepared for it. I will try and keep them in stock hereafter, that we may have less at least, of such vexatious disappointments. We have at present (Aug. 15th) 25, introduced and laying.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

THE Italian queen, which you sent me about June 20th, must be a hybrid, fertilized by a black drone. I have no other Italian bees or queens to compare her with, but I noticed that the bees in the cage with her were hybrids, and now her progeny are marked, some with two bands, some with one, and some are common blacks. It is a bore to send clear to Medina for an Italian queen, and, after nearly two months, find I have a hybrid, fertilized by a black drone.

The goods I have sent to you for, this season, have not been sent promptly, nor have they been satisfactory in all respects. Your plea of being rushed with business and orders is reasonable, but does not compensate your customers for their losses and vexations. Under the circumstances, I think it would be good policy for us to send our money, for apiarian supplies, to some dealer who is not so hurried by multitudinous orders as not to know what he is doing.

Mo., Aug. 11th, '78. Yours "growlingly," R. M. P.

The queen you mention was probably fertilized by a black drone; but is it not rather unkind in you to say she must have been a hybrid before being fertilized? All of our own queens are certainly reared from an imported mother; and I have every reason to think that those who have sold us queens have been equally honest. If you order dollar queens, my friend, you should be willing to take your chances with the rest. If you send all the way to Medina, and do not wish to run any risk of being disappointed, why do you not order tested queens, as per price list?

It is quite possible that those who have less business will be able to serve you better and quicker; I should be sorry to stand in the way of giving others a fair share of business, but if you will tell me where I have failed to come up to my agreements, I will try to make amends. Can we not talk pleasantly about it, meanwhile?

I received your postal, stating that you had shipped a queen to me, by express, Aug. 9th. I have not received her yet, nor do I think I ever shall. They tell me at this office, that she was never shipped, or I should have got her before this. I shall not look for her any more. I have to go 3 miles, on foot, to the express office, and am crippled with the rheumatism, so I can't go hardly, and it don't pay.

N. Y., Aug. 12th, 1878. H. D. G.

Why, my friend, according to the dates you yourself give above, you have complained in only three days after the goods were shipped, and one of the 3 days was Sunday, at that. You say, too, that you do do not believe the queen ever was shipped, and that you shall not look any more. Do you realize what a serious thing it is to tell a person you do not believe his statements? and how much pain such unkind words give to those who are working hard, early and late, to try to please you? We have two mails a day. By 7 o'clock in the morning or before, three clerks are in readiness to take charge of the work, and, if an order for queens has come during the night, one counts and records the money, and sees that addresses are all plain and correct; another addresses the shipping tags, and books the transaction; the express clerk computes the charges, and decides the best route for the queens to go; while a fourth goes to the apiary and takes the queens from the hive where they are left until the last minute, to have them as fresh as possible, and then they are hurried to catch the train at a little after 8 o'clock. Thus you see we manage to have your queens off by express on their way to you, in less than 2 hours after your money is in our hands. Now we all enjoy this, and take pride in serving you almost before you expect your queens; but, my friend, it hurts keenly to get such letters as the above, when we are doing the very best we can.

I received your queen yesterday, in the best possible condition. H. D. G.

N. Y., Aug. 15th, 1878.

I am very glad you are now convinced that she was sent, friend G., but I should have been more glad for just one little word of apology for the unkindness of the letter written before.

QUEENS FOR SALE.

Since queens have been entirely excluded from the mails, I shall be unable to purchase any farther, for the present, but will furnish you from my own apiary, as follows:

Queens reared from imported mothers, as soon as they commence laying, each $1.00. These are to be taken just as they come, and no one is to be allowed to pick them over, under any circumstances. Tested queens of ordinary appearance, and ordinarily prolific, will be $2.00. If we select the largest, yellowest, most prolific, and that produce the finest bees, the price will be $3.00

For such as are small, dark, or old, but that produce nicely marked bees, the price will be $1.50. Hybrid queens when we have them, will be 50c.

All of the above, we guarantee safe at your express office, and that they are as represented, but can be responsible for them no farther. I do not know what the express charges will be, but, from what experience I have had, I fear it will be a grevious burden for us all. On this account, and because of the great number of losses that are being almost constantly incurred, especially by beginners, I would advise you to buy your queens in a nucleus. This does away with all trouble or risk of introducing, and you can build them up into fair colonies if purchased any time during this month. To make the burden as easy as possible, I will furnish a neatly painted 2 frame nucleus full of brood and bees, for $2.50; a 3 frame nucleus, $3.50. These prices are for nuclei, without queens, and you can have any kind of a queen you wish, by adding the prices as above given. A nucleus hive should stand a journey of a month or more.

We have made arrangements with our Express Co., the Union, to forward queens to all points on their line for 15c; when they pass on to other lines, the charge is 25c more. We almost invariably, ship queens by return Express. There is no advantage in prepaying the Express. A half-dozen queens can be sent as cheaply as one. A. I. ROOT, Medina, O.

ITALIAN BEES.

Imported and home bred queens; full colonies and nucleus colonies; bee-keeper's supplies of all kinds. Queens bred early in the season. Send for catalogue.

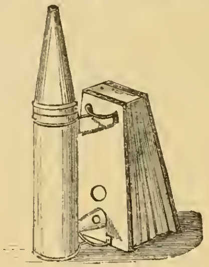
9tf DR. J. P. H. BROWN, Augusta, Ga.

Cash for Beeswax!

Will pay 25c per lb. for any quantity of nice, clean wax, delivered at our R. R. station.

A. I. ROOT, Medina, O.

New Quinby Smokers!



The Smoker I am offering the present season, is entirely new in many respects, and is pronounced the best in market. In quality of material and manner of construction, it is as durable as can be made. It works as perfectly in every way, as any smoker now in use.

See what bee-keepers say of it.

"I have thoroughly tested the smoker. It works like a *charm*. Everything about it is perfect. They are made in a thorough and workmanlike manner. I consider it the best smoker in use."

Wenham, Mass., July 10, 1878. H. Alley.

"After selling a large number of your smokers we are gratified to know that they give general satisfaction. We keep all the prominent styles in stock, and whenever a visitor buys one he always selects the New Quinby in preference to any other."

Canajoharie, N. Y., July 17, 1878. J. H. Nellis.

Sent on receipt of price.

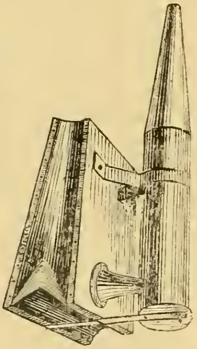
2½ inch tube by mail	$1 75
2 " " "	1 50

By express 25 cents less.

Send for circular of General Supplies to

5-4 L. C. ROOT, Mohawk, N. Y.

KING'S DIRECT DRAFT SMOKER,



Is giving unbounded satisfaction wherever used. It *economizes all* the wind and smoke, *burns all combustibles* and goes out only *when* put out. It is the same size as "Bingham's standard," and is neat and durable. Price, $1.00; by mail $1.25. Address,

A. J. KING & CO.,
6tf 61 Hudson St., N. Y.

1878. FOR SALE! 1878.

Italian Queens.

Propogated in populous colonies, pure and prolific. Tested queen, $2.00. The same grade of queen so soon as fertilized and laying, $1.00. Also full and nucleus colonies. Orders filled promptly, and safe arrival guaranteed. *When wanted by mail, add 9c for postage.*

Address W. P. HENDERSON,
4-9inq Murfreesboro, Tenn.

J. E. MOORE'S

PERFECTION HONEY BOX,

Adapted to any sized sections. Send for Circular.

Address, BYRON APIARY,
J. E. Moore, Sup't,
Byron, Genesee Co., N. Y.

EUREKA.

We are pleased to announce that we are now prepared to supply Comb Foundation made from pure yellow beeswax, that has wire incorporated in it. This is manufactured by an entirely new process, and we are able to make 6 sq. ft. to the lb. of Foundation containing the wire. By any other process, it has not been possible to make over 3 to 4 sq. ft. per lb. when wire was added. The necessity for putting wire into brood foundation, is becoming daily more apparent. Capt. Hetherington, C. C. Van Deusen, L. C. Root, and other prominent apiarists could not be induced to use foundation without the wire addition. It positively prevents all sagging, and the combs handle so much stronger that the difference in cost is of no account in the long run. Without the wire, by this new method we can make foundation for surplus comb honey that measures 10 sq. ft. to the lb., and the base of cells are *so thin* that the weight is nearly all in the side walls. No "fishbone" will ever be found in box honey made on this foundation.

We are able to supply this fdn. promptly, in any quantity, at following sizes and prices, viz: foundation containing wire—sheets cut 10x16, 10x18, 8½x16½ or 11¾x12—less than 50 lbs. 80c per lb., 50 lbs. and over, 75c per lb. If wanted in different sizes from those mentioned, add 10c per lb. to above prices. Sample sheets of either size, post paid, by mail 30c.

The thin yellow fdn. for surplus comb honey in sheets 8x16½ or 12x21 less than 50 lbs. 70c per lb. 50 lbs. and over, 65c per lb. The latter kind made from white wax, add 25c per lb. to price of yellow. Small samples of all three kinds by mail, 15c. We have issued a small circular telling how to use it, and describing it more fully.

For prices of old style fdn. and Italian queens, see July No. Gleanings. Shipping crates of all kinds made to order. The Hetherington crate a specialty, See my circular for prices.

Send P. O. money orders, payable to me, on New York City.

J. H. NELLIS,
8tf **Canajoharie, N. Y.**

QUEENS BY MAIL OR EXPRESS.

I will send queens by mail during Sept. and Oct. Safe arrival guaranteed at the following prices:

1	Untested queen sent by mail	$1 15
1 doz	" " " " "	13 20
1 "	" " " " express	12 50
50	" " " " "	47 50
Tested queens each		2 50

I will prepay charges on queens sent by express less than 1000 miles. Address E. W. HALE,
9d Wirt C. H., W. Va.

Comb Foundation MachineS

$35.00 TO $100.00.

SAMPLES OF FOUNDATION WITH OUR ONE POUND SECTION BOX BY MAIL FOR FIVE CENTS.

For illustrations see our Illustrated Catalogue of Apiarian Implements and Supplies, mailed on application. A. I. ROOT, Medina, Ohio.

New Honey Package For Candied Honey.

A Great Novelty. A queen bee with a stinger on every box; makes lots of fun and sells rapidly with good price on the honey.

Sample dozen in light wooden case by mail	75c
One box	10c

Send stamp for circular. Address
JOHN H. MARTIN,
9d Hartford, N. Y.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required*.

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	" " waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
3	Cages, wood and wire cloth, provisioned. See price list	10
30	" " " per doz	1 00
20	Candy for bees, can be fed at any season, per lb	15
0	Cards, queen registering, per doz	06
0	" " " per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	" " without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	" " top only, per 100	1 00
15	" " bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $6 50 to 10 00	
	" inside and gearing, including honey-gate	5 00
	" Hoops to go around the top	50
	" " per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	" The same, large size, double above prices.	
2	" 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 25
0	GLEANINGS, Vol's I and II, each	75
0	" Vol's IV and V, each	1 00
0	" Vol. III, second-hand	2 00
0	" first five neatly bound in one	6 00
0	" " " unbound	5 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	" " ½ doz	5 25
	" " ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	10
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	" " Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0 0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester	8 50
0	Queens, 25c to $6 00. See price list	
1	Rabbets, Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
8	Saw Set for Circular Saws	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	" Catnip, good seed, per oz. 20c; per lb.	2 00
0	" Chinese Mustard, per oz	15
18	" Mellilot, or Sweet Clover, per lb	60
18	" White Dutch Clover, per lb	35
	" Motherwort, per oz. 20c; per lb	2 00
18	" Mignonette, per lb. (25c per oz)	1 75
	" Simpson Honey Plant, per package	05
	" " " " per oz	50
18	" Silver Hull Buckwheat, per lb	10
	" " " " peck, by Express	75
	" Common " per peck	50
18	" Summer Rape. Sow in June and July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
1	Slate tablets to hang on hives	01
	Smoker, Quinby's (to Canada 15c extra) 1 50 &	1 75
5	" Doolittle's, to be held in the mouth	25
	" Bingham's $1 00; 1 60;	2 00
25	" OUR OWN, see illustration in price list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of vail, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	12
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	06

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Names of Premium Articles. *Any of them sent post-paid on rec'pt of price.*	*Prices of Premiums*	*Number of Subscribers required at* 5 c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	2
4—*"That Present," Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4 4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	6
12—*First and second Vol. of* GLEANINGS	1,50	10	
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

SET OUT GRAPE VINES.

I will send free by mail the following vines at $3.00 per dozen.

Hartford Prolific, Rogers Number Two, Wilder, Croton, Massasoit, Maxatawney, Rulander, Goethe, Taylor, Catawba, Telegraph, Martha, 3 Year old Concords. 2 Year old Concords, $2.00 per doz. 1 Year old Concords, $1.50 per doz. 15, one of each kind for $5.00.

J. G. WARNER,
8-10d Clover Farm Vineyard, Butler, Mo.

Send Ten Cents for a Sample Copy of

The American Bee Journal

The Oldest, Largest and Best Bee Paper.

THOMAS G. NEWMAN & SON, CHICAGO.

☞**FRIENDS!** If you are in any way interested in

BEES OR HONEY,

THE A B C OF BEE CULTURE,

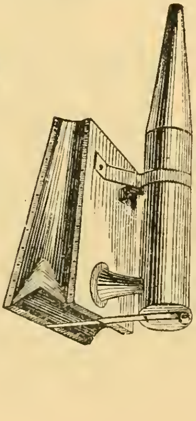
Part First, will tell you all about the latest improvements in securing and **Marketing Honey,** the new 1 ℔. **Section Honey Boxes,** making **Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth,** &c., &c.

Part Second, tells **All about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood,** etc, etc. Both parts are fully illustrated with engravings, some of them quite costly. *Nothing Patented.* Either one will be mailed for 25c; ½ doz., $1.25; 1 doz., $2.25; 100, by express, $15.00.

The two parts bound in one mailed for 40c. Per dozen, $4.00. Per 100, by express, $25.00.

A. I. ROOT, Medina, Ohio.

KING'S DIRECT DRAFT SMOKER,



Is giving unbounded satisfaction wherever used. It *economizes all* the wind and smoke, *burns all combustibles* and goes out ONLY *when* PUT OUT. It is the same size as "Bingham's standard," and is NEAT and DURABLE. Price, $1.00; by mail $1.25. Address,

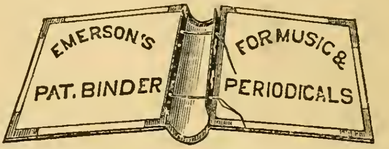
A. J. KING & CO.,
6tf 61 Hudson St., N. Y.

Grape Sugar.

Superior Double Refined Grape Sugar for feeding bees @ 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb. by the barrel.

We will furnish the above, at above prices, direct from the factory, at Davenport, Iowa, or deliver it on the cars here in Medina, at ½c in advance of above prices. Any amount less than 50 lbs. will be 5c per lb.

A. I. ROOT, Medina, O.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders.

A. I. ROOT, Medina, Ohio.

COMB FOUNDATION,

45 TO 55 CTS. PER POUND,

According to quantity bought at one time. For further particulars, see our Illustrated Catalogue, mailed on application.

A. I. ROOT, Medina, Ohio.

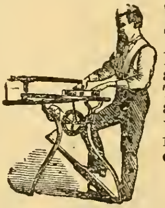
Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 00
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	8 50
" " per sheet	9

We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.



BARNES' PATENT FOOT POWER MACHINERY! CIRCULAR and SCROLL SAWS. Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making.** It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**

W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

Comb Foundation MachineS

$35.00 TO $100.00.

SAMPLES OF FOUNDATION WITH OUR ONE POUND SECTION BOX BY MAIL FOR FIVE CENTS.

For illustrations see our Illustrated Catalogue of Apiarian Implements and Supplies, mailed on application.

A. I. ROOT, Medina, Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. OCTOBER 1, 1878. No. 10.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* $2.50; 5 *for* $3.75; 10 *or more*, 60c. *each*. *Single Number*, 10c.

MY EXPERIENCE. NO. 10.

RESULTS OF ONE YEAR'S BEE-KEEPING.

IN the winter of 1876, I bought 6 swarms, lost two of them, and one of those that lived was very weak. I made new hives and transferred the remaining 4 swarms, increased them to eleven swarms, sold three and bought an extractor and a smoker, Italianized the remaining eight, and carried them all through the winter. In the spring, one lost its queen, as mentioned in the Sept. No., so that in reality, I had but seven swarms with which to commence the season of 1878. From the four swarms and their increase, I had 283 lbs. of honey, ¾ of which was extracted. I have kept an exact account with my bees, and after deducting five dollars each for the two swarms lost while they were in box hives, and six dollars for the swarm that lost its queen, there is still a profit of $60.

SELLING HONEY.

Just after basswood had blossomed, I had what seemed to me considerable honey. I had sold some at two hotels and one store, and to a few of the neighbors; still, it did not go off fast enough to suit me, and I feared it would be some time before it was all sold. Finally, I concluded to "hang out a shingle." I took a nice piece of planed board, and painted upon it the following: "Nice new honey, only 16 cts. per pound." I then nailed it up where passers-by would be sure to see it, when they were looking at my "nice bee hives." In less than a week, I had to pull down my "shingle," for my honey was all gone; and, during the remainder of the season, I could have sold at least a thousand lbs., right at home, if I had had it to sell.

GIVING UP PET THEORIES.

When I first commenced bee-keeping, I had a great many pet theories and ideas (I thought I knew just how I was going to manage my bees); but actual practice entirely demolished most of them, and "fearfully shattered" the few that remained.

I was intending to use honey boxes with glass sides, and the wooden tops, bottoms, and corner pieces were all ready to nail together, when I visited an apiary where section boxes were used. I saw at a glance, that they were far superior to boxes, but it was hard work to give up the glass honey boxes. I thought how nice they would look filled with honey, and how I should pile them up in the shape of a pyramid, castle, or something of that sort, show them to admiring friends, and then—why then, sell 'em. But now I must use section boxes, and I didn't think they would look half so nice "piled up"; but I now know that I had a bigger "pile" of money than I would have had, if I had used the glass honey boxes.

The above is a fair sample of the fate of perhaps a dozen of my favorite "notions," and I presume there are a few more that only some "bitter" experience will entirely destroy.

When reason and common sense teach us that some other implement, or plan, or idea is better than ours, why not say pleasantly, "Your way is better than mine," and not cling to the wrong, simply because it is *our* idea?

Rogersville, Mich. W. Z. HUTCHINSON.

Your concluding remarks, friend H., are excellent, and I wish we could all bear them in mind. Your plan of putting up a "shingle" is the idea exactly. I have been many years engaged in a retail trade, and know very well the effect of a pretty little sign, to invite people to make you a call, and to let them know your business. The greatest part of our people are Yankee enough to want to know what everyone's business is, and especially in the country, does one look about as they ride along, and see everything in the shape of a card attached to one's premises. Among our reformed men, we have in our town one who used to be about equally celebrated as a hard drinker, and as a painter of ornamental signs and cards. He has stopped drinking, and now does the beautiful lettering and japanning on our extractors. To furnish him work this winter, I will have him try his hand at some little signs to be put up in the dooryard, or near the gateway, for bee-keepers; such as, "Bees, Queens, and Honey for Sale." Those of you who have facilities for doing such work, can make them at home, during the winter season.

THE FIRST YEAR IN THE A B C CLASS.

I BECAME a scholar in your class just a year ago, at which time, I purchased 5 swarms of black bees in common box hives, and took my first lesson in bee culture.

I followed you closely all the fall and winter, and visited several of the most successful bee men of our neighborhood, with a view to ascertain which hive would suit me best..

My bees wintered through finely, and when fruit bloomed were ready to transfer; but the weather proving cold and frosty, I concluded to wait until later. I transferred all safely, in June.

I procured an Italian queen (a $1 one) from you, which has since proved to be perfectly pure and gentle, and produces progeny which are good workers and death on moths, which are very bad here. I proceeded to Italianize, and have raised 9 fine queens and have still more on the way. I have introduced 5 successfully, after they were fertilized and laying, and have increased from 4 swarms (for I drowned ont one in getting it home) to 10 strong two story stocks, and 7 strong nuclei, and have about 200 lbs. surplus comb honey,

I have met with many queries and obstacles, but have ever found a ready solution in GLEANINGS. So much for the first year.

The coming year, I propose to use fdn. and sections, and also an extrastor; and hope by your aid to still advance toward perfection.

Now, friend Root, how can I best keep queens over for early swarms? If in bottle queen cages, at what temperature must they be kept?

Commencing Aug. 26th, 1877.

Aug. 26, 1877.	To 4 stands bees in old box hive @ $4 30.....	$17 20	$
Sept. 20.	By 10lbs comb honey @ 20c.		2 00
Oct. 20.	To samp. copy GLEANINGS.	01	
" "	" " " Am B. Journ.	01	
" "	" " " Bee Keepers Magazine..................	01	
Oct 25.	To 3 mo. sub. to GLEANINGS and postage...............	28	
Nov. 10.	To 50lbs gp. sugar and post.	2 03	
" 16.	To freight on grape sugar..	1 00	
" 20.	To lumber for 10 hives.....	3 00	
" 20.	To nails, paint, etc.........	50	
Mar. 1, 1878.	To labor on hives.......	5 00	
June 17,	To yrs. sub. to GLEANINGS.	1 00	
" "	To feeder, fdn., etc.........	50	
	Postage.......................	03	
July 1	To 1 Italian queen..........	1 00	
	To tin smoker...............	25	
Aug. 2	By 15lbs comb honey @ 15c.		2 25
" 13.	By 20lbs " " " "		3 00
" 26.	By 93lbs surplus honey on hand @ 14c................		13 95
Aug. 26.	By 1 Italian queen.........		1 00
" "	By 7 stands blacks in mov. hiv's and up. stories @ $9		63 00
Aug. 26.	By 2 stands hybrids @ $9..		18 00
" "	By 1 stand Italians.........		10 00
" "	By 7 nucleus hives, 2 frame @ $2........................		14 00
	By 5 Young Queens @ $1..		5 00
	By 25lbs grape sugar.......		1 50
	By 6 m. sub. to GLEANINGS unexpired.................		50
	To making 7 nucleus hives	1 75	
	Totals.........................	$33 57	$127 20
	1 Years Ballance Cr.................... ...		$93 63

I enclose my report for 1878. HARRY PITTOCK.
Falls City, Neb., Sep. 7th, 1878.

I have given the above to show what can be done even in commencing; also to show what is needed to make a good healthy start, and to exhibit our friend's system of book-keeping; his report is, in fact, a couple of leaves torn from his account book. By this method all the items, both debt and credit, follow along in succession on the same page. You should have a book with broad pages, properly ruled, that the particulars may all be put on one line. I would advise you to put down only the cash transactions, and at the end of each year, to take a faithful invoice of stock. This invoice will take in all other items; such as, increase, stock on hand, bees from the woods, capture of vagrant swrams, swops and trades, etc. Come to think of it, I do not know but that we can get up a blank book for the purpose, with some plain printed instructions for our A B C scholars for keeping their accounts neat and clean. We shall see.

HONEY WITHOUT A HIVE.

VENTILATION AMPLE.

I THINK your smoker just splendid. I must tell you what I did with it last week; a gentleman living near here found a swarm of bees on the fence, within two rods of the path leading to his barn, and about the same distance from the barn door. The path was traveled many times daily, but the bees were not discovered until they had made about 50 lbs. of honey. I purchased the bees and, with the aid of the smoker, made a successful transfer of bees, honey, brood, and all to a simplicity hive. They have fixed up their comb in good shape, and are doing nicely. I want the queen for the above swarm. If I am successful, I will Italianize my eight swarms this fall. This is new business for me. J. H. LEE.
Nashville, Mich., Sep. 16th, 1878.

Many reports have been given of bees building comb in the open air, but none with the amount of honey you mention. I once knew of a swarm that had located between two broad rails of a rail fence, but they starved out after having built three pretty good sized combs. When bees are obliged to take up with such quarters, it would seem that there is much need of decoy hives, which have been so often spoken of, of late. During warm summer weather, I presume a swarm might do very well without any hive, but at the approach of frosty nights, unless they are a powerful colony, they will not hold out long.

ANOTHER A B C SCHOLAR.

ABOUT SECTION BOXES, ETC.

THIS is a rainy day, so open your door and let me in. The object of my call is to ask a few questions which I hope will benefit others of your A B C class.

Come in! Come in! out of the rain, by all means; make yourself at home, and ask all the questions you please. Now then:

Well, how can the bees work in the sections above, when you put 7 broad frames in the top story, and have to jam them tight up together to get 7 in? I can't see where there will be any room for the bees to get between the sections &c. If you have to jam the top bars right close together, what's the use of any enameled cloth for the top story?

Why, my friend, what do you want the bees above the top bars in the upper story for? If you mean, when you have a swarm strong enough to work in a third story too, why, just take out one of the broad frames, and put in a brood comb. You surely have read your journal and price list enough to know that the top and bottom bars of the sections, as well as the bottom bars of the broad frames, are narrower than the sides, just to let the bees through, have you not? To be sure, we do not use the enameled cloth over the upper story when filled with sections; have you forgotten the picture on page 92, of how to wedge up the 7 broad frames, and close the ½ inch space with a little strip of wood? I am glad to answer questions, but it would hardly be using the rest right to take very much space for what has been made so plain in the A B C book and back numbers, would it?

Is the enameled cloth the same that carriage makers use for tops, dash, &c.? Also, would not black oil-cloth answer, or would it be too nearly air tight?

The enameled cloth is just like that used by carriage makers, only, perhaps, a trifle lighter. I have found no trouble in using it for wintering, when covered with chaff cushions.

Would not the top story be better with only one tier, or just four sections, to the frame? There would be plenty of room, as you could take out as fast as they were filled, and replace with empty ones. It would have this advantage, they would not need any separators to hold them to their places; there would be nothing of a rickety nature about them; they would be close to the bees, and they would not have the second row to climb up to, which consumes a little of their precious time.

We used all our sections in single tiers until about 3 years ago, and I have had such in use every year since; but *I* think them more trouble, and not as good for a honey crop, as the broad frames. True, you can pick out a single section, and put an empty one in its place, but when putting them on and removing, you are obliged to handle them all singly. The separators are not to hold them to their places, but to insure nice, regular combs. It will not pay to omit them, in any case.

If you wish to put frames in the top story for surplus honey, and not use the section boxes, would you use the broad 2 inch frame or the brood frame, and put 2 inches from center to center?

You can use the broad frames for holding a thick comb for extracting, but I rather prefer the brood combs, for the metal corners are easier for handling, and the comb can afterwards be cut down, if they should be wanted for other purposes. However, if extracted honey comes into favor again, I shall have some drone combs built in these broad frames, and strengthened with wires, and keep them for extracting and nothing else. It will save more than half the labor of uncapping, and will be a saving to the bees besides.

Can I fasten fdn. in frames where there is no groove or comb guide?

See price list, to learn how to fasten fdn.

Is white a suitable color to paint hives? If not, what is the best color? J. F. EDWARDS.
Sebree City, Ky., Sept. 10, 1878.

In hive making I advise white paint, and tell why. Please excuse me, but A B C scholars should "read their books." *I* don't care, but these old fellows will give it to us in the "Growlery," if we have so much repetition.

PERSISTENT BUILDING OF QUEEN CELLS, ETC.

HERE is an episode in the bee line. Your queen, as I stated in my former letter, was killed some weeks ago upon the failure of the honey supply, and a new queen was reared. I commenced feeding amply, I thought, but upon opening the hive a couple of days ago, I found that breeding had been carried on so rapidly, that there was not an ounce of honey in the hive. The new queen was all right, but behold! there were two sealed queen cells, and the old cell from which the present queen was reared contained a large worm, undoubtedly from an egg which the bees had carried there. It would seem that some of the bees, fearing that the new queen would be slain as the old one had been (because of the dearth of honey), were determined to be prepared for such a calamity. Such a provision, made in view of a possible emergency, would seem to indicate the presence of reason rather than instinct. After giving the swarm sealed honey, I cut out the queen cells, one of which I caged and placed under a setting hen. N. H. SUPLEE.
Philadelphia, Aug. 24, 1878.

I think you give the bees more credit than is their due, my friend. Instinct teaches them to start queen cells as soon as their queen is gone, or even when she shows symptoms of failing. Sometimes, after an old queen has been removed, they get into a kind of mania for building queen cells, and keep on building them; I can hardly call it a "sport," but rather an offshoot of instinct —a sort of misconception of instinct. On another page, an English friend speaks of the "accumulated memories" of past generations. Well, they seem to remember not quite right; the past experience that taught them such expensive lessons in ages gone by, they now and then recall indistinctly. If they never built queen cells and swarmed, the race would become extinct; if they built them and swarmed to excess, the result would be the same, and hard seasons would eventually thin off all except those that chose the golden mean between the two extremes. But the tendency to these freaks remains still, and hence the many reports we have, of two queens in one hive; queen cells when there should be none; another queen started in the cell from which one has just hatched, etc. I might state it in another way, by saying the young bees did it, because they wanted something to do, to keep out of mischief. They often carry the eggs to other cells for queen rearing.

QUEEN CELLS TO ORDER.

WHILE reading your article on the queen nursery, I thought of making some suggestions on the way of getting cells started. There are always more or less queen cells just started, or "acorns," on the combs in the hives; if you cut these off and keep them on hand, you can always get as many cells as you want, by taking a flat stick and removing larvæ that have just hatched, and putting it in the bottom of the acorns; for the bees will accept the situation at once, and soon have a nice sealed queen cell from every acorn given them. You can decide what comb is to be devoted to queen raising, as the bees will fasten the acorns wherever you put them. I believe the plan would work, if small pieces of wood fixed in the frame were used to fasten the acorns to, instead of comb. These pieces of wood could be taken out and put into the nursery without any bother at all from hatching bees. By this means, I believe a swarm could be made to build any number of cells wanted. What think you? W. L. BOYD.
Hamilton, O., Sept. 11, 1878.

There, my friend, I expect you have "just gone and done it." The idea was partly given some time ago, in GLEANINGS; and, since then, somebody has spoken of artificial queen cells, made by dipping a wet stick of the proper size and shape in melted wax. Well now, you see, we will just take a comb guide, and fasten little knobs of wood along the edge like this (Fig. 1):

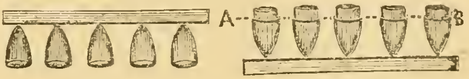


Fig. 2. Fig. 1.

ARTIFICIAL QUEEN CELLS.

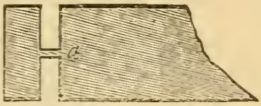
The pointed pieces of wood may have a pin point in their lower ends, that will hold them to the comb guide, until the whole machine is immersed in melted wax up to the line A B; take it out, remove the sticks, and you have a string of queen cells, like Fig. 2; take these to your best imported stock, and put small larvæ in each cell; hang it in a queenless and broodless hive, and I will warrant a string of nice queen cells, nicely capped over in due time. If we have a powerful colony, several such sticks may be used, for a full stock can supply as many as 50 cells with food all at once, and in the height of the season, it may be even more. Nice queen cells to order, strung on a stick, for 10c. per dozen! sent by mail, postpaid! Friend Boyd, you shall have half the profits for your share of the invention, and—I was just going to say—the friend who used to advertise queen cells for introducing might have the other half; but then, you see, I wouldn't have any. We shall see.

HOW A BOY MANAGES THINGS IN THE APIARY.

I AM doing very well with my bees, this season. I have increased from 10 to 22, and have taken 450 lbs. of honey. Our harvest does not begin till heart's-ease blooms in August.

When I wish to clip a queen's wings, I put her into my mouth, and cover her with saliva, then peel up one wing with the scissors, and off it comes, the queen not being able to crawl very fast. One swarm that had a clipped queen came out, and tried to leave, 9 times in 2 weeks; it seemed to make no difference whether the hive I gave them was full or empty; they are quiet now, though.

I have just put the last of the metal corners which I got of you, 2 years ago, into use, and have had to make a few wooden frames. While at work on these I made a discovery; viz., a new style of comb guide.



NOVEL PLAN OF MAKING COMB GUIDE.

I raise the saw table so that the saw does not cut quite half way through the top bar boards, saw one side, turn the board over endwise and saw the other, then, with my knife, I split off the bar at *a*, leaving the little strip on the underside of the top bar; finally cut off this strip at the ends, so that the end bars will come up snug, and that the frame may hang true on the rabbet. My saw makes a wide cut, so that I get a nice guide, and it is easily and quickly done.

I use natural comb starters in my section boxes, and put them in as follows. I cut the comb in thin strips, put the boxes on a warm cook stove top down, lay in the comb, leave it until the lower edge of the comb shows signs of melting, then set it off to cool. By keeping a number on the stove, I can put in starters as fast as I can set them on and off, and have no hot "irons" to get cool all the while.

I took the queen and a few bees from a strong colony; they raised queen cells, hatched a queen, and swarmed. They were hived, but, for some reason, they went back to the hive they came from. At noon, I took one comb that had a queen cell on it from their hive, put it in a new hive, shook most of the bees into it, and in about an hour they swarmed. I dug out the queen cell and returned them. I cut open the cell, and the queen rushed out and flew off, being the first queen that I ever saw, that could fly as soon as hatched. LLOYD Z. JONES.

Galva, Ills., July 22nd, 1878.

Some of our readers will remember friend Lloyd, as the one who made his buzz saw by cutting it out of a hand saw, and who prevented queens from squealing by daubing their wings with honey, etc. He has grown older now, but still his remarks savor of that same boyish originality. When he paid us a visit in '76, his father and brothers thought he had better be raising corn than fussing with his bees. Now, friend L., we expect you to demonstrate that honey is as useful as corn, but be sure you do not forget that it takes hard work to raise either. Your top bar, I think, will answer very well, and is very ingenious, as is also your plan of putting in natural comb starters. Boys are very apt to waste too much time in experimenting with new things, and to neglect important duties. Strive to do everything well and thoroughly, even if you are but a boy.

SOME INTERESTING FACTS CONCERNING THE HISTORY OF APICULTURE.

WE clip the following from the London (England) *Standard*, July 29th, '78.

For more than one thousand seven hundred years, no one told the world more about bees than had been before told it in the fourth Georgic. Then HUBER, the blind Swiss, made himself hives of glass, and putting his wife and his servant BERNENS to watch his winged colonies, chronicled their observations in his famous letters to BONNET. He was the very GILBERT WHITE of apiculture; but he yet left it, as we have said, in the "metaphysical stage." To HUBER mainly it is that we owe the comprehensive word "instinct." Why do bees protect their queen?—instinct. How do they find their way back to their hive?—instinct. Why do they make their cells in a hexigon, with a base so perfectly constructed that, as KONIG and MARALDI have shown, an engineer to devise it would have needed a profound acquaintance with the most difficult and recondite parts of the calculus?—instinct again. Why do they entomb all offensive matter in *propolis?* Why do they ventilate their hive by fanning it with their wings? Why do they show "a community of wants and desires and a mutual intelligence and sympathy, which lead to the constant interchange of good offices, and which, by introducing a systematic division of labor amidst a unity of design, leads to the execution of public works on a scale of astonishing magnitude?" Instinct, HUBER and the old naturalists tell us again. Nor is it too much to say that until the more or less meaningless idea of "instinct" was laid aside, and it became recognized that the intelligence of bees is, like that of man, and, indeed, of all other living things, the result of habit and accumulated experience, the true nature of the hive community was hardly understood. Sir John Lubrock, following in the lines laid down by Mr. Wallace, has by a long series of experiments sufficiently shown us that bees learn exactly as children learn, and that their "instinct," like our own human reason, is the ultimate product of accumulated memories. And what of this? the practical bee keeper will perhaps ask. What need we do more for our bees than provide them with comfortable and well ventilated hives, give them in summer abundant store of thyme and clover, and, if possible, heather; comfort them with syrup and treacle in winter, and generally treat them tenderly? The answer is simple. A bee has more than instinct; it is intelligent, and can learn; and the better we treat our bees, the better we house them, the more trouble we spend on their education—if we may so term it—the greater in the long run will be our reward. Fanciful as it may seem, we yet can, although by slow degrees, it is true, educate bees as we have already educated dogs. Virgil, a true countryman at heart, was fond of hounds, and knew their habits. What would he have said—we need only ask ourselves—of a pointer broken to the gun? In the same way, it is hardly possible to doubt that the two thousand years more or less which have elapsed since the penning of the Georgics have made bees more intelligent and more civilized than were their remote ancestors, when the "celestial boon of honey air-distilled" was first sung.

ANOTHER OF THE A B C CLASS.

THE bee cage came to hand, and "*contents noted.*" I knew no more what to do with it than a baboon with a music box; no directions. I fed the bees on honey, and waited the next mail;—no directions. I opened the door of a hive (Barnes') and placed the cage on the top of the lower frames, and waited one night and part of two days; still no directions. I opened the door again and moved the slide of the cage so that the bees could come out. One did so, and was immediately seized by the natives, but he freed himself and went back into the cage. Fearing the queen might escape, I closed the hive, and left them to the uncovenanted mercies of the colony. Then came your card and paper. It was night, and next (this) morning, I found 7 carcasses stark and stiff on the alighting board; others may have fallen off in the thick, high grass. I saw no queen—never could see her, or else did not know her from the others. This morning, I took every frame out of the hive, but saw no queen or eggs; I did not know how to look. The sash or frame introduced before sending for the queen, I examined carefully. There were several queen cells, but they were black, and seemed to be old; I could not see anything in them. The examination was made with some trepidation, for bees glory in stinging me. *Now, have I a queen or not?* There was one dead bee in the cage, and that was not she.

You say you owe me a dime, and I send you another, for which send me something that may be useful to a verdant young gentleman on the wrong side of sixty. Perhaps, the "A B C" would suit my age. Precociousness was never charged against me as a fault. T. N. LYNE.

P. S.—I see from GLEANINGS, that you are down on patent hives. Has Barnes' patent ever crossed you? If it has, say if it will do. T. N. L.

Ferguson's Station, Ky., Sept. 6th, '78.

I really can not tell, my friend, from your statement of the case, whether you have a queen or not, but fear not. Give the swarm some brood from another colony, and if they start no new queen cells, your queen is probably there. Your hive *may* answer very well, even if it is a patented one.

Your letter has taught me a lesson, which is, that, if I am going to have customers for queens who are so very new to the business as you seem to be, it will be well to send printed "directions" with each cage. It has been done, and here is a copy of it; so you see your letter has probably done *some* good.

DIRECTIONS FOR CARING FOR, AND INTRODUCING QUEENS.

When you receive a queen and bees, see that there is candy in the cage, and water in the little vial. If either of these should be out, you might give them a little honey if it is handy. Do not, under any circumstances, get the bees or queen daubed, for that will be sure to kill them.

Although queens can be kept in these cages for several weeks, if supplied with sugar, water, and fresh bees as often as those with her die of old age, and kept in a warm room during cool weather, still I would advise introducing them to a full hive as soon as practicable after they are received. To do this, you are to hunt out and remove the queen from the hive, then place the cage on top of the frames, with the wire cloth next the bees. The old queen had better be kept in a similar cage, until you are sure the new one is safely laying, so that you may put her back in case any trouble happens to the new one. Leave the cage over the frames, as a rule, for 48 hours. After you have had practice, you can introduce a queen in one day, or even in an hour, to some stocks. When you release the queen, always have smoke of some kind handy; a smoker is the best thing. If the bees are densely clustered over the cage, making a hissing noise, do not attempt to let the queen out. If they are behaving about as usual, feeding the queen through the meshes of the cage, etc., you can usually let her out without any danger. Lift the cage from the frames, and gently brush off all the bees sticking to the outside; have your smoker in hand, and do not have any disputing in regard to who is "bossing the job." Now push back the slide, and let the queen crawl out among the bees on the top of the frames. If she and the bees don't go out, blow a little smoke through the wire cloth. If they treat her well, all right; but have your smoker ready, and do not let them sting her, under any circumstances. There is no danger, if you are ready with the smoke. If she is allowed to run down between the combs without trouble, or molestation, you may close the hive, and leave them about 15 or 20 minutes; then remove a frame, and look her up; if hostile, you will find her in a ball of bees, perhaps on the bottom board. Do not be alarmed, but get out the ball, drive the bees off with smoke, put her back in the cage, and try again next day; and so on, until she is allowed to go about without hindrance. Sometimes, she will be found all right after 15 minutes or a half hour, but will be balled 4 or 5 hours afterward. I would look two or three times, after letting out any queen that I wished to be sure of. It is never safe to omit this. Sometimes, it will take a week or 10 days, to get a queen introduced, and we find about one colony in a hundred, that will not receive a queen at all. In such a case, we try her in another hive.

If you do as I have told you, you need almost never have a queen killed. There is no process in the world, that is absolutely sure, unless you watch them afterward as I have directed. The queen, after a journey, almost always looks dark and small, but after she gets to laying, which will be from 10 or 12 hours to 3 or 4 days, you will hardly recognize her as the same insect. As all our queens are daughters of imported queens, they are seldom very yellow, but I can send you yellow queens if you wish, reared from other stock. If your queen should be dead when received, please state all the circumstances, that we may know how to remedy the difficulty in future. Rearing and shipping queens at a low price has been a favorite hobby with me for years, and I am very anxious to please all my customers. If you succeed with your queens, I shall be very glad to hear of it, and if you do not succeed, I shall be glad to hear of it, too, if I can in any way help you. Thanks for your patronage, and best wishes for your success. Good day.

From your old friend,

NOVICE.

REPORT FROM MICHIGAN.

I TAKE the liberty of writing you a few lines concerning my success in bee culture during '77 and '78. In the fall of '76, I put 14 colonies of black bees in a shed with double walls, and facing the east, so that the bees could fly out at pleasure. They came out every sunshiny day, and by the 1st of April '77, I had only 3 swarms alive, and the 1st of May, they were all dead, although they had plenty of honey.

I could not get along without bees very well, and as I had heard much about Italians, I sent to you for one colony, which arrived in good order, and gave one excellent swarm, the 25th of June.

I also got one colony of W. Porter, of Northville, Mich., which gave one swarm on the 25th, one on the 26th, and one on the 27th of June. What was the cause of their swarming on three successive days?

They all got their winter supplies. Four of them were put into chaff hives that I got of you; two were in what is called the "protective" hive, and I put 6 inches of chaff around them, in a box. All wintered well. About the 20th of April, I commenced feeding coffee A sugar for brood rearing. Hurrah for the chaff hives, candy, slates, and feeding coffee A sugar for brood rearing! All these must be used, if anybody wants early and strong swarms, such as I got. Let all bee-keepers notice what I am going to tell you.

May 1st, '78, about 10 A. M., came out my first swarm; May 6th, the next first swarm; May 14th, the third first swarm. After this, a few came out every day. All other bee-keepers around here complained that they were getting no swarms. The swarms that came out the 1st and 6th each gave me 3 young swarms; the one on the 14th gave 2. The old stocks gave, some 1, some 2, and some 3, young swarms.

I have one particularly good stock; it gave me 3 swarms last year, and this year has sent out 4 swarms. From the 1st young swarm this year, I got 3 others, and from the 2d, one other, so that this one colony has given 8 swarms, and I took from it also 25 lbs. of cap honey. How is that? If any of you Ohio bee-keepers can beat that, let them say so.

So my report to date is 28 young swarms from 6 old colonies, making 34 in all, and about 50 lbs. of cap and section honey. They are all ready for winter. In the spring, I will tell you how many I got through alive.

I would like to know the reason why a good many of my young queens are large and dark; the young bees look like black bees. The old queens are yellow Italians. What is the cause and the remedy?

My success in bee culture is the result of using comb fdn. O. KLEINOW.

Detroit, Mich., Sept. 3, 1878.

The colony that swarmed on 3 successive days, I think, must have had their queen replaced, and therefore the 3 swarms were, virtually, all after swarms, with virgin queens. Your increase was certainly remarkable, and I guess we shall have to ascribe it to the excellent care and good judgment you have shown in the use of all modern appliances. I think it only accidental that your young queens are dark; the second generation from Italy, is almost always lighter in color. If the workers are dark, the queens must have mated with black drones in your vicinity.

HOME-MADE APPLIANCES FOR THE APIARY.

OUT of my summer's experience in bee culture, I have gleaned many practical ideas, and offer the following suggestions for what they are worth. I shall be amply compensated, if I can feel that I have added one mite to the fund of useful knowledge, so generously spread before your readers in "GLEANINGS." To begin with, if you will allow me to "rise and explain," I would state that the stern logic of necessity has compelled me to invent such apiarian implements as a paucity of funds would not permit me to buy, or want of time allow me to wait for; hence the economy manifested in the construction of my apiarian supplies. . ,

SMOKERS.

In transferring 24 stands of bees, I improved my home-made smoker (got up *a la* Root), by inserting a piece of wire cloth, cut the full size of fuel receptacle, and pushed down to the bottom of said cup. It is but a moment's work to haul it out and run an old toothbrush across each side, to remove the soot, and replace, while to unscrew and replace the piece of perforated tin which you recommend is quite a job.

Your wire cloth would not prevent small coals of fire from getting through into the bellows, as does the tin with the holes pricked in so as to raise a deep burr towards the fire; besides, this portion of the smoker, being constantly exposed to a blast of cold air, seldom needs brushing out. Your idea of using a toothbrush to keep the soot out of a smoker is a very good one.

SECTIONS, FRAMES, SEPARATORS, AND CHAFF CUSHIONS.

My section frames were made of the widest plastering lath I could select, and held 4 section boxes. The latter were made of ⅛ inch stuff, and fastened together by 4 cigar box nails. They contained about 1 lb. of honey each. The size of frames is 12x12. The advantages are, exceeding cheapness, ease in handling, and rapidity with which they are filled and sealed over, thus preserving their whiteness. I shall plane all the stuff next season, and dovetail the sections. Enameled cloth answered very well for separators. Friends, if you havn't a chaff hive, turn your hives into such immediately, as follows: take frames made of lath precisely like my section frames, only a trifle larger, rip up old hemp salt-bags (cost us 8c. each here, and one will cover 4 frames), and wind them clear around the frames, tacking and folding over at the sides and bottom; fill from the top with chaff. Thus, you have a chaff cushion at a cost not exceeding 4c. If the frame is made large enough, it ought to require a slight pressure to carry it down to its place. It should rest on the bottom board, as well as the rabbets. By turning the brood frames half way round, and placing 1 such chaff frame on each side, and a cushion made of similar stuff on top (or two folds of rag carpet), you have a perfect chaff hive. Bro. Root, to whom I conveyed the idea over a year ago, illustrated with a diagram, said then, and has since said, that it required "too much fussing." So *I* thought, until I devised a *frame fork*, to turn 4 or 6 frames, at one motion of the hand. Imagine a 4 tined pitchfork with the two inside tines broken out, and the remaining two tines flattened, so as to slip easily between the sides of the hive and frames, when passing up under the projecting arms; thus 4 or 6 frames are lifted at once.

Temporary appliances are often used, and with satisfaction for a short time, but they are almost always soon laid aside for something neater, more permanent, and substantial. Such, I think, will be the case with your lath frames, enameled cloth separators, division boards, etc. The objection to the last is that the bees will sooner or later gnaw to pieces cloth that comes next to the combs; combs built next to them will be uneven, compared with those built next to a smooth board, and they look untidy.

HOME-MADE FDN.

My fdn. was made early in the spring, from plaster of Paris casts, taken from Bro. Root's fdn. One sweep of a wide whitewash brush dipped in melted wax, after first soaking the cast in water, gave me such nice sheets of fdn. that the bees accepted it with "tears of joy" in their eyes. Bro. Foster's method, described in July No., gets one ahead of me, I should judge, and he deserves the sincere thanks of all of us purse bound bee-keepers. Good casts can easily be obtained by mixing the plaster very thin, and working it into the fdn. in small quantities, with a case knife, before adding the bulk of the plaster.

ANOTHER FEEDER.

Best and simplest of all, is my feeder, made by tacking a piece of tin to each side of a common, or lath frame. The tin should reach up to within an inch or two of the top bar. This makes a feeder holding 3 quarts or more. It is easily filled, if tightly tacked does not leak, and is very accessible to the bees, even in coldest weather. A piece or two of lath, of the inside length of the feeder, float upon the sweets, and upon this the bees sit like turtles on a log. As they sip the syrup, they descend with the raft clear to the bottom, and are in no danger of getting drowned.

Well, my teacher, I will close this article, lest I get my ears boxed, as did your A B C scholar, Buchanan, for his long but, to me, very interesting article in Aug. No. of GLEANINGS. Let me say in conclusion, however, that I send you a peace offering in the shape of the names of 4 new subscribers, so don't lay it on very hard. In return, you can do nothing calculated to please us subscribers better, than to insert a good sized engraving of yourself, in the very next No. of GLEANINGS. Indeed, we insist upon it. It is the one great desire of my wife, to see a picture of the wonderful man of whom her husband talks and reads so much. N. G. PHELPS, D.D.S.

Milford, Del., Sept. 9th, 1878.

Now, my friend, I was going to say something about that feeder, but your concluding remarks have entirely driven the idea out of my head. I once tried to get an engraver who could give you a faithful likeness of Novice and Blue Eyes; the picture was never used. Since you have suggested the matter, we will try once more; not that we think ourselves good looking, but because it is a pleasure to see our friends, be they ever so homely.

GRAPE SUGAR, CONTROVERSIES, ETC.

PLEASE read your remarks on page 294, about your faith in "petitions to congress," and your powers of accommodation, and then read Messrs. Sayles' letter on page 306, in relation to "queens by mail," and see what room you give for such charges as are made against you in Sept. No. of the *A. B. J.*, as to self interest, &c.

W. S. BOYD.

P. S.—Can it be possible that you *deserve* the *abuse* that you get through the Sept. *A. B. J.?* I can not but believe that friends Newman, Dadant and Muth are sincere in what they say, and can only wish there was more harmony between you. W. S. B.

Hamilton, O., Sept. 3d, 1878.

I think, friend B., you misapprehend me. If it is best and proper that queens should go by mail, I believe we shall soon be allowed to send them thus; and if the people are pretty generally agreed in the matter, a petition to Congress might be a very good thing. I do not believe in moving rashly in these things. Our friend, Dadant, is doubtless sincere in what he says of grape sugar, but, for all that, I think him very much mistaken. I have eaten it in large quantities just as I would maple sugar, and have fed it to our bees for over a year, without a single bad feature showing itself so far as I know. It has also been used largely all over our land, and is now quite an article of commerce. I do not know what kind of grape sugar they used in France, but I am sure that that made by the Davenport Glucose Co., is wholesome and free from the impurities mentioned. Another friend writes as follows:

> It is my positive conviction that whoever is interested in "bees or honey," as well as the health and morals of community, should let glucose, grape sugar, and kindred abominations severely alone. I hope you will do so, and not allow this business to do as many another iniquity does, entice, not by its silver, but by its *gold lining*. Oh, consistency, thou art a jewel. D. P. LANE.
>
> Koshkonong, Wis., Sept. 5th, 1878.

Thank you, friend Lane, for your kindly caution, but I think a great deal more of *practical experiments* than of "positive convictions," and of real work in the apiary than long articles in the papers. Look back and see how much space has been wasted in writing down Italians, extracted honey, fdn., and the like, and but a short time ago, it was stated in the newspapers that the coffee A sugar of commerce was adulterated with poisonous articles. The matter was only a sensational scare, and one did not need to be a chemist to show its utter absurdity in less than 5 minutes. If anybody can put anything in white sugar that will not affect taste or color, and is perfectly soluble in water, I should be pleased to see a sample. The papers used to say that imitations of gold were made that would stand aqua fortis as well as the genuine article; and the only way I could think of, to silence those who talked so loudly about it, was to offer to purchase all such imitations, at the current price of gold. None has ever been brought that would stand the test.

Now, my friends, I appeal to you; shall I be swayed and frightened by what others say, or shall I keep on in my own way of building greenhouses, house apiaries, lamp nurseries, and foundation machines, that I may know from faithful and expensive experiments whereof I speak? Shall I consult Tyndal and Agassis as to how bees build their combs, or shall I give you in GLEANINGS the results of my own work with *bees?*

No doubt, friends Dadant, Muth, and perhaps Newman too, are sincere; I cheerfully forgive them all, in any case. But what then? The pickpocket in jail, last Sunday at the close of our Bible class, begged piteously for me to get him some tobacco; he was sincere, most unquestionably, and I pitied him from the bottom of my heart, while I felt pretty sure that a refusal would result in his calling my professions of Christianity nothing but hypocrisy. Some of you may say I should have given him the tobacco; it is possible you are right, and that I erred in judgment, but I certainly shall not give him any tobacco, though he should call me names from Monday morning until Saturday night; but if I can help him in any right way, I hope I may be all the more ready to do it.

LARGE SECTIONS VERSUS SMALL.

FRIEND BUTLER'S EXPERIENCE IN THE MATTER.

I THINK I once told you that I did not like 4¼x4¼ sections, and I have not changed my mind. I have been aware, for many years, that the smaller the package used for surplus honey, the smaller the crop would be. Years ago, I found that, when honey was abundant, and the hives well stocked with bees, three 10 lb. boxes would be filled and ready for market, just as soon as three 6 lb. boxes, and the same rule will apply to 5x6, and 4¼x4¼ sections.

This spring, we had on hand, from last year, 1,500 5x6 sections. They are arranged in cases of 33 to a case, and when well filled, overrun 50 lbs. to the case.

Our cases to hold 4¼x4¼ sections hold 40, in 4 rows, and occupy more surface than the 5x6. Now then, in every single case where the stocks were equal, the 5x6 sections were filled first; and if the position I take is a fair and square one, my loss in honey has been 10 lbs. for every case of the 4¼x4¼ sections used.

Mr. Editor, you may not be able to swallow this whole dose, but I venture to predict that, if bee-keepers have not already satisfied themselves, on this point, they will soon do so. I have tested the matter in 40 or 50 cases, and know that the result will be the same, when tested on stocks of equal strength.

Besides the loss of honey, we have other objections to the small sections. They are seldom finished up around the frame, as nicely as the larger ones, and they certainly cost 40 per cent more than the 5x6 sections. All I ask is that bee-keepers test this fairly and report.

Who will be the lucky man to introduce penny packages for the market? JAS. BUTLER.

Jackson, Mich., Aug. 14, 1878.

P. S. It is our intention to deal only in facts.
J. B.

Why, my friend, you are simply demolishing the position of Doolittle and others, concerning the use of a single tier of sections over the frames, instead of two tiers. Those who have so strongly advocated only one tier of boxes over the frames would better ponder on your remarks; but your position does not touch the small sections scarcely at all, as I see it. If I am right, you have not even tried them in frames, as they are intended to be used. I, too, two seasons ago, discarded so shallow a space for surplus, especially with powerful colonies. Let us put the question in this way. Let the bees into an upper story of a L. or Simplicity hive, and let them fill the whole space solid, like an old fashioned honey box; perhaps they would fill it quicker, than if the upper story contained a set of light frames, but I think the difference would be very little. One season, a great part of our surplus was comb honey built in full frames, as I have before told you. The result was so satisfactory, that I determined to have all my comb honey built in that way, but with divisions in the combs, so that they could be separated into 1 lb. "chunks" of honey, without any leaking and daubing. That is exactly what our frames of sections accomplish. Instead of puttering with 5 or even 10 lb. boxes, our honey is all built in a 50 lb. box, or in other words, a whole upper story. As thousands of them have this season been filled, the people will soon determine if there is any mistake in the matter.

MORE ABOUT QUEENS' VOICES, ETC.

THE post master as well as the express agent at this place, frequently called my attention to the piping of queens, and they not being bee men, asked me what it was and what it meant. I answered it was the voice of the queen, but why they thus called, I was unable to explain—did not know whether it was on account of alarm, distress, or of fear.

On opening hives I have frequently seen them take hold of the top of cells and pipe their peculiar "zeep," several times, then move an inch or two and repeat—I have also noticed, what Huber describes in their piping, the stillness of the workers during these performances.

I was not aware until GLEANINGS reached me, that this peculiarity was more noticeable in my queens than others. I reared from 5 queens, chosen and tested, the year before, but 4-5 of those sent you were from two very large and light colored, as well as prolific queens and industrious worker bees. Neither of the queens mothers produced drones—didn't allow it.

SMOKERS.

A neighbor bee keeper came over to buy a smoker—I exhibited four—offered yours for $1, what it cost me, and the others at a discount on cost. After trial and thorough examination he chose yours, carried it home, and is delighted with it.

RED BUD.

I send you a small lot of *Red Bud* seed, and two seed pods of same. I could gather a peck or more of the seed on my place, if they were worth anything to any body. The tree blooms a little before the peach in our section and remains in bloom much longer, and is eagerly sought by the bees.

W. P. HENDERSON.

Murfreesboro, Tenn,. Sept. 14th, 1878.

I, too, have noticed a hush among the bees, when the queen's voice was heard. Your friend doubtless preferred the Simplicity smoker, but from reports through the journals, others doubtless think differently. We have heard the red bud often spoken of, and will have the seeds planted. Thank you.

HOW TO GET A START.

CHAPTER SECOND.

I WILL give you the result of that small swarm of bees described under the heading, "How to Get a start," page 126, Apr. No. of GLEANINGS. I bought a dollar queen of J. H. Nellis, and introduced her on the 22d. day of Sep., 1877. By the 1st. of May, the black bees had disappeared. The last of them must have been 7 months old. On the 20th of June, they cast their first swarm; on the 30th of June, they cast a second swarm. All went well until the 14th day of Aug., when the first swarm, which came out the 20th of June, cast their first swarm, and, on the 24th, a second swarm, which I returned to the parent hive, after allowing them to hang on the tree all night, for punishment. On Sunday, Sep. 1st, the second swarm, which came out June 30th, cast their 1st swarm. I returned them also, and the next morning, found 3 dead queens. Now, friend Root, I call this altogether too much swarming; it looks as if they don't know when they are well off.

I would rather hive 4 black swarms than one Italian. Ugly is no adjective for them, when you shake them off the tree. If I had kept them all separate, instead of returning them to the parent hive, I should have had 5 new swarms from that pint of bees. It seems that my blacks know enough, when they have swarmed once, to stop; for from 4 hives of black's, I had 4 swarms, one from each. The Italians are good on swarming.

DAVID C. BROW.

Stamford, Ct., Sep. 10th, 1878.

My friend, please do not be in too much of a hurry to compare your blacks and Italians, but just keep hold of the "start" you have got, and give the Italians a chance. It may be true that they swarm more than the blacks, but they also get more honey. Give them a chance, and you will have a fine apiary, almost before you know it; and, if you give them room before they get crowded, I think you will find no trouble with their swarming. We have had just 6 swarms this season from over 100 colonies, but we constantly had an eye on them all. One of the above 6, was a truant swarm that came to us. It is very likely true, that Italians are crosser in hiving than black bees, as a general thing. Use smoke. make them behave.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

YOU "give diagrams for general purposes," do you? A happy thought, isn't it? The GLEANINGS must certainly be a valuable affair, if for no other reason than that its Editor is a person of inexhaustive experience, and who cannot agree with facts, other editors, or anything else; he is so taken up in reforming miserable humanity, I suppose, as to make such a thing impossible. Five Langstroth frames, packed on all sides as in chaff hives, will winter well enough, but only a few bee-keepers will adopt such cumbersome concerns.

J. V.

Adams Sta., N. Y., Sept. 10, 1878.

Friend V., I just opened my mouth in astonishment, when I read your postal, and for the life of me, I could not tell what called it forth, until the letter that you wrote last was hunted up. You said my comparison of the Gallup and L. hives on page 299 was was not a fair one. I penciled on the margin of the letter that I gave the diagram for general purposes, meaning that it was an approximate comparison; the clerk, by mistake, wrote the word "give" instead of "gave." Of course, I do not give *all* my diagrams for general purposes. Can you not scrape up a little more charity? I am sorry I make so many mistakes, and I am sorry, too, to disagree with so many good people, but consider, my friend, that if I agree with everybody that comes along, you would hardly think it worth while to come to me for my opinion. I have tried the Gallup, American, Adair, and other short frames, as well as deep frames, and after going the rounds for several years, I feel willing to adopt the L. frame for the rest of my life. Especially, do I want a shallow frame for a two story hive. I shall feel just as friendly toward you, whether you agree with me, or no.

BEE BOTANY AND ENTOMOLOGY.

I SEND by the same mail with this, one of your queen cages containing some bugs that are killing bees. They are found on the golden rod. I found 5 one evening, within 40 rods, each with a dead bee.

The bees have not done well here this summer, especially the latter part; and most singular has it been, that the bees seemed to diminish very fast, at one time, when they were gathering honey.

I send two specimens of flies that have been very numerous here this summer, and I have found some with bees in their clutches. They are very strong. They also catch other insects, such as millers and mosquito hawks. Are they the same as described in your GLEANINGS?

I have not yet discovered the bugs in the act of killing the bees, but have always found the bee dead, and the bug would have hold of one of the legs or the feelers, and hold him as if nothing had happened, the same as a boy would a cricket. My opinion is that it poisons the bee. Let us know something about it in GLEANINGS, or I shall have to make closer investigations myself, although I am busy.

J. F. ZATTERSTROM.

Spencer Brook, Minn., Aug. 25, 1878.

The two winged fly is the Missouri Bee Killer, *Asilus Missouriensis*, the same as described and illustrated in the revised Manual, p. 263; also in August GLEANINGS, p. 259.

The other insects sent, are true bugs. The scientific name is *Phymata Erosa*. It is ⅜ of an inch long, of a greenish yellow color, while across the flattened and expanded abdomen, on the back, is a dark brown band. The colors vary very much.

This insect seems to be getting quite a notoriety as a bee-killer. I have received it from Maryland, Iowa, and now from Minnesota, with the same complaint. I have long known it here as one of our valued insect destroyers. It preys on plant lice, caterpillars, etc.

I am preparing a full description of the insect, with a portrait, which will soon appear in one of the bee papers. A. J. COOK.

Mich. Ag. College, Lansing, Sept. 5, 1878.

I send you a package of flowers that grow in our garden. The bees work on them much. Can you tell me what they are, and whether they are worth cultivating for bees to work on?

LEWIS T. COLBY.

Enfield Center, New Hampshire, Aug. 5, 1878.

The specimen sent is *Veronica Spicata*, a tall perennial from Europe. It is one sort of Speedwell, of which we have about a dozen species. Bees like the flowers of all.

At Lansing, we have a good deal of *Veronica Virginica*, or Culver's Physic.

The plant sent is sometimes raised for ornament.

W. J. BEAL.

Agricultural College, Lansing, Mich.

MINTS.

Enclosed I send the blossom of a plant; can you give its true name, and inform me whether bees gather large quantities of honey from it? My bees go about 1½ miles for it, and seems extremely busy on it from 10 A. M. until sundown.

This year is my first with the fdn. comb. I would not be without it. The comb machine I got of you has more than paid for itself in making up wax for others in this section. W. H. STEWART.

Orion, Wis., Aug. 23d, 1878.

P. S. This plant thrives only on the poorest sandy barrens. S.

Answer, by Prof. W. J. Beal, Mich. Agricul. College.

This is *Monarda Bradburiana*, one of the horse mints or bergamonts, all of which, I have no reason to doubt, are good for honey. I have never known a plant of the mint family which bees did not like. We have about eighty species of mints in the region to the north and east of Kentucky and the Mississippi and many more to the west. Among those often sent me are *Teucrium Canadense*, Germander, *Lycopus*, (two species), *Pycnanthamum* (2 or 3 species), Thyme, Summer Savory, Calamintha, Balm, *Collinsonia* or horse balm, Sago, three species of *Monarda*, Catnip, *Scutellaria* (2 or more species), *Stachys* or hedge-nettle, and Motherwort.

As to the quantity of honey made by any of these, I know nothing.

ASTERS.

J. Chapman, Home, Mich., sends a piece of one of our common asters. There are, east of the Mississippi, in the Unted Sates, about 60 species of asters, all good for bees. They look a good deal alike. There are several species which closely resemble this one sent me now. It is probably *Aster miser*, a very common species and one extensively variable; I have not a complete specimen now. Asters and golden rods are two leading genera of our autum wild plants. W. J. BEAL.

Lansing, Mich., Aug. 12th, 1878.

CLEOME OR ROCKY MOUNTAIN BEE-PLANT.

J. A. Simpson, of Warren Co., Ills., sends me *Cleome integrifolia*, which is sometimes also called Rocky Mountain Bee-Plant. Cleome is the best name for it; this is short and easy. He requests an answer in GLEANINGS. W. J. BEAL

Lansing, Mich., Sep,, 22d, 1878.

THE SPIDER PLANT AGAIN.

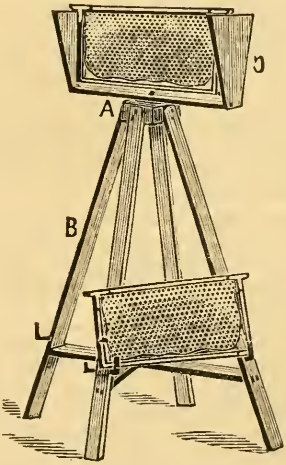
Our experience with the spider plant, this season, is this; it commenced to bloom about the 25th of June, and the bees have worked on it every day (fit day) since. They commence about 5 o'clock P. M., and work until dark. I used to think that bees went home with the sun, but I have heard them on this plant when too dark to see them any distance; and found them again in the morning as soon as it is light, and for a while after sunrise. If you tie a piece of musquito bar over a bunch of the flowers, in the afternoon, and examine it about sun-down, you can see the honey for yourself. We have about 1-10 of an acre this year, but expect, next season, to plant several acres, as we consider it ahead of anything that we have tried for honey. If any of your bee friends would like to try it, I will send them a small package for ten cents. Friend Novice, just try it, and I think you will agree with me that we had better ignore botany this once, and have a christening of this *spider*, and call it Honey-plant, or what? MOLLIE O. LARGE.

Pine Hill Apiary, Millersville, Pa., Sept. 11th, 1878.

Why, Mollie, you are a genius. I have just looked at one of the spider plant blossoms that had some lace tied over it, according to your suggestion, to keep the bees away, and the drop of honey that had collected on it was so large that I had a real good taste of it. There was not enough of it to make me sick, it is true, but sufficient to see how very pure and white it is, although it had a slightly raw unripened taste, which I presume the bees will know how to remedy. If I should ever get so far away from home as Pine Hill Apiary, I will come and see your flower garden, and I expect we shall have one of the biggest kind of visits.

A BEE EASEL.

I SEND you a description of a bee easel, made by my friend, Mr. F. O. Peet, my nearest neighbor bee-keeper. In your July No., you speak of a place to put the first frame removed. This easel meets that difficulty and more; as you can load it up, with frames. Mr. P. was led to make this from his experience in hunting for the queen, it being a tiresome job to hold up before the eyes a frame heavy with bees and honey.



AN EASEL TO HOLD COMBS.

The stand is made as follows: take a cubic block, A, measuring four inches each way, and four strips of wood, B, 1¼ inches square by 3 or 4 feet long; nail these strips one at each corner of the block for legs; spread the lower ends about 18 inches apart, and secure them by nailing cross pieces about half way down. In the middle of the top, or block, put a round nail letting it project upward about 1½ inches. This is for a pivot. Take three pieces of board, C, 4 inches wide; let the one for the bottom have the same length as the inside of your hive, and the other two for the sides have the same length as the height of the hive; nail the two side pieces on the ends of the bottom piece, and bore a hole in the center of the bottom piece, large enough to fit the pivot in A; place this, C, on the stand, A, and you have a swivel; hang your frame in it, and you can hunt for your queen at leisure, turning C as you choose, without disturbing the bees in the least. If the bees cluster on C, it can be removed, and the cluster brushed into the hive.

On the legs, little cleats may be nailed, on which to place additional frames if desired. We find our bee easel a handy institution, and would not be without one.

MOSES G. YOUNG.
112 Yates Ave.,
Brooklyn, N. Y.

Aug. 29, 1878.

The stand will, doubtless, be much appreciated by some, while others will think it too much machinery to carry about from hive to hive. If I am correct, the top is to be made so as to be taken off to shake the bees that may cluster on it, back in front of their hive. It should be made so light as to be easily carried in one hand, and so strong that it will not easily get broken, even should you be so careless as to leave it out, and then run over it some dark night.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, OCT. 1, 1878.

NOT the hearers of the law are just before God, but the doers of the law shall be justified. Rom. 2; 13.

ONE *ton* of the A B C books have already been sold.

OUR next journal will probably be printed on the new printing press.

UNTIL Jan. 1st, a discount of 5c. per lb. will be allowed from our price list, on all comb foundation sold.

THE annual convention of the National Bee-Keepers' Association will be held in the Cooper Union, New York City, commencing [illegible] on Tuesday, the 8th of October, 1878.

MR. DAVID GEER, "regular down-Easter," headquarters Boston, age seventy, is reported worth $100,000, all made by peddling honey through New England, often having eight or ten wagons on the road at one time.

THE *Los Angelos Star*, of Aug. 15th, reports a colony of bees, belonging to Henry Clansen & Bro., that has furnished 14 colonies of bees, and 1,000 lbs. of extracted honey. With a powerful colony to commence with, and a long, uninterrupted flow of honey, I suppose this is possible. Although not so stated, I presume the honey was furnished by the old stock and the increase.

OUR irrepressible friend, Scientific, has invented a very neat little box for candied honey, to be sold, package and all, for 10c. Besides the honey, each box contains a most ingenious piece of mechanism that makes the queen, on the top of the cover, sting your fingers when you pull a harmless looking little string. Honey, machinery, box, and all, for only 10c. See his advertisement.

WHILE nice comb honey was selling right along at 16c, in Chicago, ours, in the 1 lb. sections, brought 20c., without any trouble. It seems too bad for us to send honey that long distance; cannot friend Newman or some of his pupils furnish as neat and convenient a honey package and case as we do here in Ohio? Beg pardon, perhaps they do, and it was only an accident, for Chicago is a great city.

J. E. MOORE's pasteboard caps work beautifully on the 1 lb. sections. We sell them all put up at 20c. per lb., just the same as we do the unglassed, the glass and caps costing just about 20c. per lb. It is, perhaps, the quickest way in which, glasses can be put on sections. The question now comes, will customers pay for pasteboard and glass, just to have the package so well protected that it can be carried in an overcoat pocket, or packed in a trunk, with safety? They are selling tolerably in our retail market.

ONE of our readers complains that money is scarce, that he cannot sell his bees, and so has been without GLEANINGS. He offers to send me a swarm of bees, if I will send it to him for 4 years. As I shall need a great many bees next spring, for the new grounds, I have decided to take bees in that way. As I shall transfer them into Simplicity hives, and give them new queens, I do not care what the hive and queen is, providing they have stores enough for winter. Make the package as light as possible, to save express charges, which I shall have to pay.

THE rubber dating stamps, such as we use for our correspondence, and mentioned a short time ago, we can furnish for $3.00. This includes your name and residence, a set of solid rubber dating figures and months, ink, pads, tweezers, and everything complete for putting your address and date, all plain and neat, on everything to be sent by mail or express; furthermore, you can stamp it on your account books, plainer and quicker than you can make a single figure with a pen or pencil. The whole outfit will be sent at the above price, by mail. A stamp with an alphabet of letters, ink, pads and all, for setting up your name only, for 1,00,

QUEENS have been sent almost all this season by return mail or express, and we shall keep on sending them through all this month at least, if the bottle cages keep them as well as they have been doing. A friend asks, on the first page, about how to keep them over winter. If we succeed in doing that, I think it will take all the skill of an old hand to accomplish it; the great difficulty will be to keep a warm, even temperature. Perhaps a very good, dry cellar may afford this, especially if we have toward a half pint of bees to keep up some animal heat. Some arrangement will be needed to replenish the candy and water, should it be required. I should pack them in chaff cushions. I think the candy and water would keep a small cluster, where honey would not. I would give them no flour or pollen.

NOT a word has been received from Perrine in reference to his floating apiary since the article from him in our April No.; although several newspaper reports have been received in regard to the project. The principal one has been copied in the *Bee Keeper's Magazine* for August. The steamer, it seems, did not prove equal to the task of towing the barges, and after several expensive breakdowns, they were abandoned, the hives loaded on the steamer, carried from point to point, and then located on the land as usual. He has been reported as far up as St. Louis, but we have no definite news since then. The papers say he is still sanguine, and will give it another trial next season. Although he does not directly say so, I infer there was a loss of bees, in letting them fly from the boats on the river. This is all I can tell you.

[*Continued from last month.*]

SUBSTITUTES FOR POLLEN.

Not a few of our readers have been perplexed and astonished, doubtless, by seeing the bees in early spring, greedily appropriating sawdust, just as they do rye meal. I have seen them at the sawmills, so thick on a large heap of fresh sawdust as to attract a large crowd of people, and when I caught them, and tasted of the pollen from their legs, I was somewhat amazed to find it sweet and very much like the pollen from the flowers. I presume they had plenty of honey but no pollen, and that these fine particles of wood contained enough of the nitrogenous element to answer very well, mixed with honey, as they have it, when packed in their pollen baskets. The pollen from green timber contains an essential oil, besides some gummy matter, that gives an odor doubtless reminding the bees of the aroma of the opening buds. Not only do they thus collect the, to us, tasteless sawdust, but they have been found at different times on a great variety of substances. A friend in Michigan, at one time found them loading up with the fine black earth of the swamps, and they have been known to use even coal dust; but the strangest thing of all, was told me by the owner of a cheese factory near by. He said the bees were one day observed hovering over the shelves in the cheese room, and as their numbers increased, they were found to be packing on their legs, the fine dust that had accumulated from handling so much cheese. Microscopic investigation showed this dust to be embryo cheese mites, so that the bees had really been using animal food as pollen, and living animals at that. If one might be allowed to theorize in the matter, it would seem this should be a rare substance to crowd brood rearing to its uttermost limit. As cheese can now be bought here for 6 or 8c. by the quantity, it might not be so very expensive for bee food after all.

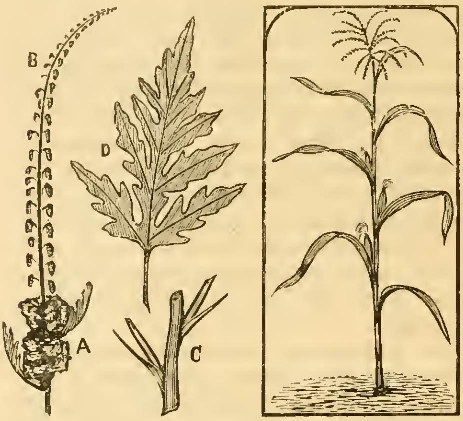
Bees can be taught to use a great variety of articles of food in this way, when they are in need of pollen, and therefore the story of giving a hive of bees a roasted chicken, to promote their comfort and welfare, may be not entirely a myth. Ground malt, such as is used in making beer, has been very highly recommended in place of rye meal, but as I have never succeeded in getting any of it, I cannot speak from practical experience. The principal supply of pollen in our locality is from maple in the spring, and from corn in the latter part of summer and fall. Almost all flowers that yield honey, yield pollen also, to a greater or less extent, and when the bee comes in laden with the one, he almos always has some of the other. The red clover yields a peculiar dark green pollen, that pretty surely indicates when the bees are gathering honey from it. They often get a considerable load of honey, with but a very small one of pollen; but, if you did not notice very carefully, you would quite likely declare that they had gathered no honey at all.

The pollen from corn is generally gathered early in the morning; when it is first coming into bloom, I have seen them start out in the forepart of the day, much as they do for a buckwheat field.

THE AGENCY OF THE BEES IN FERTILIZING PLANTS, BY MINGLING THE POLLEN.

This is too wide a subject to be discussed at full length here, but I will give you a few examples, to start you on the track. A perfect blossom contains both stamens and pistils, the male and female organs of reproduction; but sometimes we find flowers having stamens only, and others having pistils only; and these two blossoms may be borne by the same plant or by different plants.

If I am correct, the plant is fertilized by the pollen from the stamens falling on the stigma at the summit of the pistil. Unless this is done, the plant ripens no seed. Nature has adopted a multitude of devices for carrying this pollen from one blossom to the other, but perhaps the most general, and the one with which we have to do principally, is the agency of the bees. Common corn is an illustration of a class of plants that bear both kinds of blossoms on the same stalk. The blossom that bears the seed is low down, and is what we commonly term the silk of the ear. The one that bears the pollen is at the very summit of the stalk, and the pollen, when ripe, is shaken off and falls on the silk below; or what is still better, it is wafted by the wind to the silk of the neighboring stalks, thus preventing in and in breeding, in a manner strikingly analagous to the way in which the drones fly out in the air, that the chances may be greatly in favor of their meeting queens other than those from their own hives. You may object that the silk from the ear of corn is not properly a flower, so I will give you a more striking instance. The common rag weed, *artemisæ folia*, also sometimes called bitter weed or hog weed, bears two distinct, and entirely unlike, flowers.



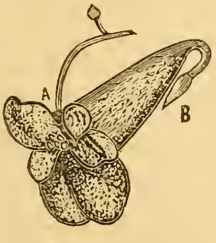
RAG-WEED AND CORN, SHOWING THE TWO KINDS OF BLOSSOMS ON ONE STALK.

On the ends of the tall racemes, as at B, the pollen bearing blossoms are seen very conspicuously, and many of you who are familiar with the weed, perhaps never imagined that it had any other blossom at all; if so, will you please go out doors and take a look at them again. Right close to the main stem, where the branches all start out, you will find a very pretty little flower, only that it possesses no color except green, and it is here where all the seeds are borne, as you will see on some of the branches where they are matured. Now, if you will get up early in the morning, you will find that these plants when shaken, give off a little cloud of fine green dust, and this is the pollen of the plant. Before I knew what it was, I used to find it annoying on account of the way in which it soiled light clothing. As this plant is in no way dependent on the bees for the fertilization of its blossoms, they contain no honey, or at least I have never been able to detect any; although I have, during two seasons, seen the bees quite busily engaged gathering the pollen. It is said that corn sometimes bears honey as well as pollen, although I have never been able to get proof of it. These two plants, as I have before remarked, seem to insure crossing the seed with other plants of the same variety, by bearing the pollen-bearing flowers aloft, on slender spines; also by furnishing a great preponderance in numbers, of these blossoms, for precisely the same reason that a thousand or more drones are reared to one queen. A stalk that succeeds in pushing itself above the others, and in bearing a profusion of pollen flowers, will probably be the father, so to speak, of a multitude of the rising generation, and this process, repeated for generations, would develop just the tendency of corn and ragweed, to shoot up tall spires, clothed with an exuberance of the pollen bearing blossoms. As the plants that give the greatest distance on the stalk between the lower, or seed blossoms, and the upper ones, are most likely to shed the pollen on neighboring plants, this, too, fosters the tendency mentioned.

But what shall the great multitude of plants do, that have no tall spines with which to shake their pollen to the breezes? Here is where the bees come in, and fulfil their allotted task, in the work of animal and vegetable life. They would, it is true, visit many plants for the pollen alone, but with by far the greater part of them, the pollen is only a secondary consideration, or not sought for at all; in vieing with each other, or, in the strife to perpetuate their species, what shall the plant do to offer the greatest attraction to the bees, to visit them, and carry the precious pollen to the neighboring blossoms, for the purpose we have mentioned? Suppose we wish to gather a group of school children about us, what will be the surest and most effectual method of doing it? Coax them with candy, maple sugar, and the like, of course; and that is just what the plant does; or it does still more, for it ransacks its storehouse and, I dare say, sends its roots abroad through the soil, with untiring efforts, to steal a more delicious and enticing nectar, more wonderfully exquisite than even the purest and most transparent maple sugar syrup ever distilled, or "boiled bown," by the skill of man, for the sole purpose of coaxing the bees to come and dust themselves in their precious pollen, or to bring from some other blossom, the pollen they have previously been dusted with. Now, this honey is precious, and it must tax the plant to its utmost to produce it; nature, therefore, who is a most careful economist, not only deals it out in small doses, but she places it in the most cunning nooks and corners, that the bee may be obliged to twist himself into all possible shapes, around and among the stamens, until the pollen is most surely dusted all over him. Observe, that the flower secretes no honey, until the pollen is ripe, and ready to do its work; that the honey slowly exudes into the nectaries, that the bees may be kept coming and licking it out every hour in the day; and that the flow of honey ceases, just as soon as the pollen is ripened and gone. A lady has suggested a beautiful experiment, to determine the amount of honey yielded by the spider flower, Cleome; she tied lace over the stalk, to keep away the bees that were constantly visiting it. The honey collected in quite a large drop. I presume we could measure the amount with many other plants in a similar way. The little cups on the flower of the FIGWORT I have seen full to the brim, with honey, when found standing alone out in the woods. Truly:

> "Full many a flower is born to blush unseen,
> And waste its sweetness on the desert air."

Did you ever remark the spot of fur or down on the back of the bee, just between the wings? Well, bee hunters sometimes put a small drop of white paint on this spot, that they may know a bee when he comes back. Several years ago bees were going into many of the hives, with a spot of white on this fur that looked, at first sight, almost like white paint. For several seasons in succession, I hunted in vain, to see where they got this white spot. At one time it seemed to come from working on thistles; but I was obliged to give this up, for I found it most on the bees, one season when they did not notice thistles at all. One swarm, of beautiful Italians had filled their hive nicely, in Sept., and almost every bee had a white back. I lined them from the hive, and followed them. They went toward a large piece of wild woodland, and I scanned the tops of the trees in vain; finally, over between the hills, beside a brook, I found acres of the wild touch-me-not (*Impatiens*), the same plant that we have often played with in childhood, because the queer little seed pods will snap all to pieces when ripe, if they are touched ever so carefully. The honey is secreted in the spur to the flower, shown below, at B.



FLOWER OF THE WILD TOUCH-ME-NOT, SHOWING THE WAY THE BEE GETS THE POLLEN ON HIS BACK.

The bee can only reach this by diving down into it almost out of sight; and when the coveted treasure is obtained he backs out with a ludicrous kicking and sprawling of his legs, and in so doing the down on his back is ruffled up the wrong way. Now this would be pretty certain to get the pollen dusted all over him, but nature to make sure has planted a little tuft that bears the pollen just on the upper side of the entrance to the flower, at A, and in his struggles to get out the white pollen is brushed all over his back most effectually, to be carried to the next flower, and so on.

A year or two after this, I took a friend of mine to the spot to show him my wonderful discovery; but lo! and behold! the sharp witted Italians had taken a short cut to the honey, by biting through the spur, and inserting their tongues without the laborious operation of crowding down into the flower. I really cannot say how many years it will take the plant to discover that it is secreting the honey in that little spur in vain, or whether it will, for self preservation, make the spur so thick and hard that the bees cannot bite through it, or put the honey some where else, or do some other way. It seems very certain, that it must soon become extinct, unless something is done; for not a seed can mature so long as the bees bite through, instead of pushing past the pollen as they have formerly done.

But will there really be no seed, unless the bees visit the blossoms? I will give you some well known facts, and leave you to judge.

Common red clover was, a few years ago, introduced to Australia, and it made a most excellent growth, in that warm rich soil, but not a bit of seed could they raise. After trying in vain, it was suggested that bumble bees were required to fertilize the blossoms. Some nests were accordingly shipped from the New England states, and the result was perfectly satisfactory; for seed was raised then, without trouble. I presume a few colonies of Italian bees would have answered equally well, but as bad luck has attended their efforts at importing, I do not know that the experiment of substituting Italians for the bumble bees has yet been tried. Darwin noticed, long ago, that bumble bees were necessary for a good crop of clover seed, and suggested the following reason why better clover seed could be raised in the vicinity of towns than elsewhere. The greatest enemy of the bumble bee, is the field mouse, that preys upon their nests; therefore, if the mice are kept at bay, the bumble bees will flourish. In the vicinity of towns more cats are kept than in the country, for every family, generally, keeps a cat, and some fearless individual has gone so far as to suggest that a town which contains an unusual number of maiden ladies, who are said to favor cats especially, will prove the most profitable neighborhood for raising clover seed.

A few years ago, the people in some part of Mass. got an idea that the bees, which were kept there in large numbers, were in some way prejudicial to the fruit; after some controversy, the bees were banished from the town. In a year or two, they found the fruit not only no better, but decidedly the reverse; for the trees blossomed profusely but bore no crops. By a unanimous request, our friend was persuaded to return with his bees, and since then the trees have not only blossomed, but have borne fruit in profusion. It is well known to those who raise the earliest cherries, that unless the sun comes out, when they are in bloom, long enough to allow the bees to visit the blossoms, no fruit will be produced. As the very earliest varieties blossom before the weather has really got settled and warm, this is one great drawback to their culture.

The Catawba is a very desirable variety of grape, as is also the Delaware; but the former is very late, and the latter very small. Dr. Grant originated the Iona, by fertilizing the blossoms of the one, with the pollen of the other; but, in his first attempts, he failed repeatedly, because the bees were sure to upset all his experiments by their intermeddling. When he thought of the idea of covering the flowers from which he wished to produce the hybrid seed with lace, or something of a similar nature, to keep the bees away, he succeeded at once; and we now have the Iona, as the result, a grape that is just about half way between the Delaware and Catawba, having very distinctly the flavor of each.

Throughout the animal and vegetable kingdom, there seems to be a constant struggle for the perpetuation of their species, which is secured only by ripening perfect seeds. Notice how the weeds in our garden will struggle and fight, as it were, to get a foot hold, until they can get a crop of seeds ripened, and then remark the numerous ways they adopt, to scatter this seed as widely as possible. If the plants were animated beings, we might almost call it tricks and sharp practice; some of the seeds have wings and fly like a grasshopper; others have hooks and catch on our clothing, and on the fur of domestic animals, in the hope of being carried to some spot where they may have a more favorable place to germinate. Fruits and berries, instead of clothing themselves in the sober green of the foliage surrounding them, when the seeds are fully ripened, affect scarlet red and other bright colors, and sometimes, fancy stripes, just to induce the birds to take them in preference to the fruit of other trees. Why do they want their fruits to be eaten by the birds, if it is their purpose to secure a place for their seed? Well, if you examine, you will find that the seed is encased in a horny shell that is proof against the digestive organs of the bird, and these seeds and stones are therefore voided frequently, if not invariably, while on the wing, in just the condition to take root in the soil wherever they may be cast. Bear this in mind while we go back a little to the bees and flowers again.

I have suggested that the honey is placed in the flowers to attract the bees; after a bee has found honey in one flower, he will be very likely to examine others of a similar kind or appearance. If the flowers were all green like the leaves of the plant, the insects would find much more trouble in hunting them up, than they now do, because the contrasting color, such as the white or red of the clovers, makes them conspicuous. It is easily proven, that bees have a sort of telescopic vision, that enables them to perceive objects at long distances; when a bee starts out in the morning, he circles up aloft, then takes a view, and starts out for business. If one field of clover should be more conspicuous than the rest, he would probably give it the preference, at least, so far as to make an examination. If he has been at work on a profitable field the day before, he will, without doubt, strike for it without any preamble. That bees look for honey and hunt it out, I have proven to my full satisfaction; and I am well convinced that what is often called instinct, and allowed to drop there, is only profiting by experience and an excellent memory of past events, much in the same way human beings do. We say that bees instinctively go to the flowers for honey; I have watched them in the spring when the blossoms first open, and many of them, very likely the young bees that have never before seen a blossom, will examine the leaves, branches, and even rough wood, of the trunk of the tree, intently smelling and sniffing at every part, until he finds just where the coveted treasure is located. After he has dived deep into one blossom, and tasted the nectar, he knows pretty well where to look next.

One afternoon the door of the honey house was left open, and the bees were doing a "land office" business, before the mischief was stopped. After closing the door until they had clustered on the windows in the room, it was opened, and the process repeated until all were out; but, all the rest of the afternoon, they were hovering about the door. Toward night they gradually disappeared, and when I went down about sundown to try a new feeder, not a bee was near the door. I put the feeder in front of a hive where the bees were clustered out, and as soon as a few bees had got a taste and filled themselves, they of course went into the hive to unload. I expected a lot to come out, as soon as these entered with their precious loads, but was much astonished to see a regular stampede come tumbling out, as if they were going to swarm, and still more when they rushed right past the feeder and took wing for——where do you suppose? the honey house door, of course. How should they reason otherwise, than that it had again been left open, and that was where these incomers had found their rich loads. On finding it closed, back to the hive they came, to repeat the manœuvre over and over again.

A beginner hears the feeding of oat meal highly recommended as a substitute for pollen. He places some near the entrances of the hives, but not a bee touches it. He is told again, to wait until early spring, before the bees have access to natural pollen, and then they will take it. He does so, but, as before, not a bee notices it. He is next told to put a heap of it in the sun, a few rods distant from the hives. This time he may succeed, but it would not be strange, if he should once more report that his bees would have nothing to do with it. Finally, he is directed to take a piece of honey, and get some bees to feeding on it, then to set it on the heap of meal. The bees soon gather over it in great numbers; those who go home loaded start out many more searching all about the vicinity, to see where the treasure comes from. The hum of the busy ones on the honey soon attracts them, and in snuffing about the pile of meal, some bee discovers that it can be used as a substitute for pollen; the others soon follow suit, and, in a little time, both the bees and their owner are happy, and the pile of meal quickly disappears. After this, he never has any more trouble in getting the bees to work on meal, for he *knows how*. The bees and their owner have both learned a valuable lesson about pollen. Is there any very great difference in the way they have been taught? Did they not both learn by practical experiment?

The touch-me-not has learned by ages of experiment, to produce a bright orange flower, to secrete honey in the spur, to place the pollen bearing stamens at the point where the bee must rub against them in getting the honey, to construct those wonderful seed pods, which explode and scatter the seed far and wide, just that it may reproduce and multiply its species. I should judge it had succeeded pretty well, in a waste piece of woodland near my home, for there are now acres of it as high as one's head, and it is quite a valuable acquisition to our apiary. As near as I can make out, the plant has much increased since the advent of the Italians, as might be expected; and instead of having a dearth of pasturage for several months in the fall of the year, we not only have honey enough so that the bees trouble the houses and groceries very little, but they amass sufficient stores to carry them through the winter, with little if any feeding. This is true of dandelions, as well, and the large, brilliant, showy blossoms that now line our roadsides and waste places, instead of unsightly weeds, should remind one of how much an apiary of bees contributes to fulfill the words of sacred prophecy:

> The wilderness and the solitary place shall be glad for them; and the desert shall rejoice, and blossom as the rose.—*Isaiah*, 35; 1.

Now I cannot positively affirm that the flowers were given their gaudy colors by the bees' selecting the brightest and most conspicuous, thereby inducing such blossoms to bear seed in preference to those less gaudily attired, neither do I know that cherries became red, because the birds selected those that showed a disposition to that color, year after year, for many centuries; nor can I prove that the bright plumage of male birds came about in the course of time, simply because the female encouraged the attentions of, and showed a preference for those most handsome. I can only suggest that the actions of birds, bees, flowers, and fruits, seem to point that way. You all know how quickly we can get fancy colored flowers, yellow queen bees, or birds of almost any shade or color, by careful selection for several generations. Have not the bees so colored the flowers, and birds, the berries, etc., although they did it all unconciously?

My friend, before you again complain because you have found a cell or two of beebread in your comb honey, would you not better ponder on the wonderful agency which those simple grains of pollen exert on the plant life that is yet to come, years perhaps, after we have faded away and gone.

POLLEN IN SECTION BOXES AND COMB HONEY.

I do not mean to convey the idea that we should be satisfied with pollen in our honey, for a very good and useful thing is sometimes a very bad one, if out of place. When pollen or meal is brought into the hive, it is taken, at once, very near to the brood; in fact, it is placed in the comb opposite, if possible. When opening hives in the spring, we find pollen scattered all through the brood combs to some extent, but the two combs next to the two outside brood combs are often a solid mass of pollen. Should a few stormy days intervene, however, this will disappear so quickly, that one who has not witnessed the rapidity with which it is used in brood rearing, would not know how to account for it. When it is gone, of course, the brood rearing must cease, although the queen may continue to lay. The amount of brood that may be reared by keeping a stock supplied with pollen artificially, during such unfavorable weather, is a very important item, where rapid increase of stock is desired.

Using the candy slabs with 1-4 or 1-5 wheat flour, is perhaps the surest way of doingthis. See CANDY FOR BEES.

A friend has a house apiary, where the combs are pretty deep, and no upper story is used. His comb honey was all secured in frames containing sections, at the side of the brood. When asked if the bees did not deposit pollen in the sections when used in that way, he replied, "Not if a comb is interposed between the brood and the honey." This is because they always want the pollen next the brood. Now, we can get more comb honey by having it near the brood than in any other way; what shall we do to keep out the pollen, and to keep the queen from laying eggs in our surplus honey sections? The remedy I have adopted, and advised through this work, is the use of the tin separators, with the small 1 lb. section boxes; for it is well known that the queen is averse to using small pieces of comb, or comb near much wood. In our own apiary, I have never known the queen to deposit eggs in these sections, when thus prepared, even if they are placed next the brood combs; but others have written that they are, at times, filled with both brood and pollen, even when thus prepared. If I could see the hives, I think I could find the trouble, yet there may be exceptional cases. The frames or sections used in the lower story are more likely to be filled with pollen than those in the upper story; for if the broad frames and sections are so made that but about ¼ inch space is left for the bees to go up into them, the queen is very unlikely to attempt to go up. An occasional cell of pollen will sometimes be found, which I regret the more, because such combs are much more likely to contain worms, if taken out in warm weather. If it were not for this small, accidental quantity of pollen, I am not sure we would ever find worms in the comb honey. See BEE MOTH.

PROPOLIS. This is the gum or varnish that bees collect for varnishing over the inside of their hives, filling cracks and crevices, cementing loose pieces of the hive together, and for making things fast and close generally. It collects, in time, on old hives and combs, so as to add very materially to their weight. It is not generally gathered in any great quantity, until at the close of the season, and it seems to be collected in response to a kind of instinct that bids them prepare for cold weather. I wish I were able to tell you more definitely where they get it; it has been suggested that it is collected from the resinous buds of the balm of gilead, and trees of a like nature; but to tell the truth, I do not know that I ever saw bees collecting fresh propolis at all. I see them almost every day, collecting propolis from old hives, old quilts, and pieces of refuse wax, when we are so wasteful and untidy as to leave any such scattered about. That the principal part of it comes from some particular plant or class of plants, or tree, I am pretty well satisfied, for almost the same aromatic resinous flavor is noticeable, no matter what the locality, or season of the year. Bees gather propolis with their mandibles, and pack and carry it precisely as they do pollen. It is never packed in the cells however, but is applied at once to the place wanted. It is often mixed with wax, to strengthen their combs, and is applied to the cells as a varnish, for the same purpose. In the absence of a natural supply, the bees frequently resort to various substances, such as paints, varnishes, resins, pitch, and the like; and the superstiton, popular in some sections, that bees follow their owner to the grave, after his death, probably obtained credence from seeing the bees at work on the varnish of the coffin. To save the bees the trouble of waxing up the crevices in their hives, it has been suggested that a mixture of melted wax and resin be poured into the hive and made to flow along the cracks and corners. This may do very well, although I fancy the bees can do this better and cheaper than we can. Our principal trouble has been to get rid of the surplus propolis, and I would much rather hear of some invention to keep it out of the way, than to add more.

It has been recently suggested that we paint our hives both inside and out, and also the frames, except where we wish to have the comb attached. From what experience I have had with painted bottom boards, I am inclined to favor the idea, for even if propolis is attached to the paint, it cleaves off much more readily than from the plain wood. By keeping the surface on any wood work on the inside of the hives well oiled, or even rubbed with tallow, we may almost entirely prevent the accumulation of propolis. Many inventors of hives, and arrangements to be used inside of hives, seem utterly oblivious of the fact, that everything, in the course of time, is not only waxed over with this gum, but all holes, cracks, and interstices, where the bee cannot crawl, are filled, and covered up with it. Many new arrangements work nicely the first season, but after a year or two more, are so clogged and fastened up, as to be utterly impracticable. It is propolis that is the great hindrance to all closed tops, or closed end frames for brood combs, to the old fashioned honey boards to all sorts of slides and hinges, or to anything else about a hive that is to move like machinery. On account of the troubles with propolis, I have advised a plain simple box, for both the chaff and simplicity hives, and for the same reasons, principally, I prefer to use the metal cornered frames. It is all very well. to talk about keeping the propolis out of the joints and connections, but in our locality, in the fall of the year, we often have it in such quantities that it runs during a hot day, like molasses, all through every part of the hive, at times, making ones fingers stick to the utensils, so it is almost impossible to lay them down when we would. With the ordinary wood top bars to the frames, when the supporting arms are removed from the rabbets, the propolis will run down so that, when the frame is put back, it is bedded almost as nicely as if it was laid in glue. Should the weather be cool when next your hive is to be opened, the stick must be pried up with a snap, that is not at all according to the liking of our bees, the most of them, even if they are pure Italians. To obviate this, I believe the metal rabbet, or, at least, a strip of hoop iron, is now in general use; but the bees will, in time, wax a wood supporting arm pretty firmly, even to this, besides there is an almost constant liability of cutting bees in two, when the frames are put in place. I know of no way of working safely and rapidly, except with the knife edge supports which the metal corners give; yet I know a great many do not like them. In using the wood top bars, I should always carry a small screw driver in my pocket, with which to pry things loose about the hive.

HOW TO KEEP PROPOLIS FROM SURPLUS HONEY.

Of course, the readiest means is to remove all sections just as soon as a single one is capped over; and, as but little propolis is gathered during a strong yield of honey, but little will be found on the honey, unless it is left until the yield has ceased. The bees not only cover all the wood work of the sections if left on too long, but they also varnish over the whole surface of the white capping, almost spoiling the looks and sale of the honey. We can keep it from the wood, by having every part of the sections covered, when in the hive, except the inner sides where the combs are attached. Our frames for section boxes, as described, do this effectually.

HOW TO REMOVE PROPOLIS FROM THE FINGERS.

A variety of substances have been suggested. Alcohol is perhaps the neatest, but is rather expensive; benzine answers nearly as well, but has an objectionable odor; soap will answer, if a little lard be rubbed on the hands first, but will have little effect on it otherwise. A friend down South says he has a pair of light cotton gloves, which he slips on when handling the waxy frames, and his hands are left clean whenever he is obliged to stop work. For removing it from glass, etc., alcohol is perhaps best.

DO THE BEES NEED PROPOLIS?

Much discussion has arisen in regard to the habit of the bees, of making all openings tight with propolis. Theory says, if allowed to follow his bent, or instinct, he will smother himself to death. Practice says, he does, at least at times, so prevent the escape of moisture, that his home gets damp and wet, filled with icicles, etc., so that he suffers; or at least, such is the case in the hives we have provided for him. Who is right? the bee? or the enlightened bee-keeper? Well, I think the greater part of the fault lies in the hive we have given him. The enameled cloth which I have lately been using for covering bees is as impervious to air and moisture, as the propolis he collects with so much pains and trouble. If the outside of this is allowed to get frosty, it will, most assuredly, condense the breath of the bees on the inside, and if the outside is but thinly protected from the weather, icicles will certainly form on the inside, and freeze the bees all fast in a lump. Now I would have no fear at all in having the bees wax up everything as tight as they wished, if I could have their winter apartment made so small that they completely filled it—filled it so full, indeed, as to be crowded out at the entrance, unless in very cold weather—and have the entire outside protected with some non conductor that would enable the bees to keep the inner walls warm at all times, and I think we should have no dampness. With chaff packing and chaff cushions, I have succeeded so well, that I am perfectly willing the little fellows shall fix up just as snug for winter, as their instinct prompts them to do.

VALUE OF PROPOLIS.

Although this gum has been used to some extent in medicine, I believe it possesses no particular value over burgundy pitch, and other cheap gum resins.

This 28th day of Sept., we have rec'd our 4.000th subscriber.

Grape sugar in frames is answering nicely generally, although an occasional colony seems to have a little trouble in understanding what it is for.

In place of the soft saw sets that have given some trouble this past season, we now have some, made of forged cast steel. Price 75c. If sent by mail, 10c. more.

The asters are in full bloom, and the bees are very busy on them. Strong colonies are storing a dark honey, having much the taste of brown sugar syrup, which I think must be from these asters.

Our imported queens are all gone, and we have not heard a word from Tremontani, to say whether he will send us the 50 ordered this fall or not. If those who would like one this fall will drop us a postal, we will notify them as soon as the 50 are received, or we hear from them. I will guarantee safe delivery, on all I undertake to ship yet this fall.

We have just made arrangements for furnishing painted wire cloth for shipping bees, at 5c. per square foot. This will also do for queen cages, but the mesh is so coarse that it is not as safe for introducing as the tinned wire cloth, made especially for that purpose; for the bees sometimes reach through and get the queen by the leg, and either cripple her, or kill her outright. Many of those who ship us queens do use the coarser, notwithstanding.

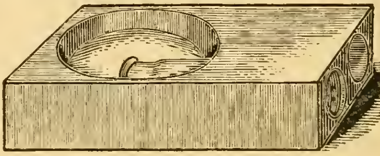
WIRE IN THE COMBS.

At present writing, we have brood, all nicely sealed, right over the wires put into the fdn., on the plan given last month. Although we have combs nicely built out on the fdn. furnished by friend Nellis, that made on my own plan is a much straighter comb. It may be that I was not careful enough in fastening the wire with the fdn. rolled in it, but as it cannot be drawn tight, like the other, I do not know how it *can* be so absolutely straight. The wire we use, is No. 36 annealed. We have made arrangements so that we can furnish it at 30c. per lb. A sample ounce on a spool, postpaid by mail, will be sent for 10c.; when we get "rigged," we hope to send them cheaper. As there are about 4,000 feet to the pound, the expense of the wire will not exceed 1c. for 10 frames, put in as I figured them last month.

Nearly 3 years ago, I told you that fdn. should be made with rollers; I now tell you—and I am "walking around the stairway" on it—that if fdn. with wire in it is wanted, a wire cloth should be made that, when dipped in melted wax, is ready for the bees. This will enable you to use your wax at home, and all you will need to purchase will be the wire cloth. It will require some very nice and expensive machinery, to make it at a low price. The wire should be so fine, that the fabric will be something like lace.

QUEENS BY MAIL.

A few days ago, I noticed an envelope in our mail, that contained a rather bulky square box. When opened the box was found to be a bottle queen cage such as our engraver has illustrated below, except that wire cloth was tacked over the end and top, and it contained 8 bees and a queen, in perfect health, and as lively as one might wish.



PLUNKET'S BOTTLE QUEEN CAGE.

It came from E. B. Plunket, Rome, Ga., and he has sent us another since, with equally good success. The vial is a ½ dram, and he closes the mouth with a piece of sponge.

Now comes the question:—Is it right to send queens by mail after they have been so positively forbidden? Was it right to aid the negroes to escape from their masters contrary to law, a few years ago? The North thought it was, and the South thought it was not. This is not a law, in regard to queens, it is a ruling of the P. M. G.

To give you an idea of the state of affairs, I will quote some of the recent rulings:

"50. Potatoes, being perishable matter, are not deemed mailable, but if inclosed in sealed packages prepaid at letter rates of postage it would be the duty of a postmaster, in the absence of any knowledge of their contents, to forward such packages in the mails."

The idea that potatoes are perishable in any sense that would leave a possibility of their injuring mail matter, is, it seems to me, a strange one; for they are only mailed in small quantities for seed, and if uncalled for, only dry up. A few years ago, the mails were specially active in assisting agriculture and kindred industries. If potatoes can now be sent sealed up, why not bees?

"53. The following named articles have been, since our last issue, submitted to the Department, and ruled upon as unmailable, viz: cement, confectionery in any form, eye-glasses, or spectacles, glass, jewelry, having pins attached; salve, sewing-machine needles, soap, steel-pens, stove-polish, sugar, tin dishes, tooth-powder."

As scarcely a mail comes into any town of any size, that does not contain more or less of the articles named above, are not such rulings almost a dead letter?

"52. The regulation prohibiting the carriage of "flour" or other powdered matter in the mails may be held as not applying to sealed packages prepaid at letter rates of postage."

Potatoes and flour must go at letter postage, but tobacco—I presume it will be as well to be mild in the matter, but really, is it not time that a protest was being made in some shape or other? If articles are presented, or put in the mails, so poorly done up that they are liable to do injury, of course, they should be thrown out, and the P. M. is paid for attending to such matters; but must the innocent suffer with the guilty?—there isn't *room* for me to say another word; I am at the bottom of the last page to be printed.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

WE have purchased a number of articles of you; foot-power saw, extractors, fdn. machine, sample hives, smokers, &c. Everything has been entirely satisfactory, and we had an idea that your institution was a model of promptness and perfection. We could not see where any one could find cause for growling, and I think that the cause of it is as much the imagination as anything.

MRS. P. P. COBB.
Middleville, Mich., Sep. 22, 1878.

I ordered on the 3d, you receipted and shipped on the 5th, and to-day noon, the 7th, I have my queens in their bottle cages, *perfectly lovely*. Such promptness will secure patronage. Thanks.

F. W. BURGESS.
Huntington, L. I.. Sept. 7th, 1878.

I was surprised and am well pleased with the manner in which you pack the articles. For compactness and neatness, your packing of goods *can't* be excelled.

I had no trouble in putting everything together, and transferred 5 common box hive colonies into the L. hives, with success.

I am ever so much pleased with your work, and so far as making *prettier* work is concerned, I think you have already arrived at perfection. I can't see how anyone could help being well pleased with your hives, frames, sections, &c. The fdn. you sent works like a charm. R. C. TAYLOR.

Wilmington, N. C. Sept. 10th, 1878.

I feel that I owe you a debt of gratitude for the little "world of pleasure" which you have opened up to me through your publications. I do not remember that I ever passed a more pleasant summer than the last, and I must acknowledge that bees had much to do in producing this result; hence allow me to express my hearty thanks.

From the printed testimony, I had come to the conclusion that a remedy had been found which would *always* prevent a once carefully hived swarm from leaving the hive; viz., the frame of unsealed brood. But I have had an exception to this rule. One of my swarms came out and clustered again, leaving only a "corporal's guard" to "keep house." However, it remained after being hived again. I think the plan is a very good one, and, no doubt, judging by the losses of my neighbors, saved me a number of swarms.

You say you have never heard of pollen's being stored in the sections. I had a number which I had to keep for home consumption, simply on account of this. I also had a number which were spoiled by the queen's using them for brood (both drone and worker), and two of my neighbors had the same. One of the queens used a number of the sections and filled almost every cell. The tin separators were properly used in both cases. Do not understand me to complain, however, for I think this invention for taking honey is the best in use, and much superior to any other method. I speak of them only that we may all arrive at the exact truth in regard to them.

My plan of disposing of unfinished sections, is to uncap and feed them to the bees having the least amount of winter stores. I think this will pay best, with honey at present prices.

In regard to the simplicity smoker, I wish to say that I could not be induced to use any other, at least, of all those which I have seen. At first, however, I had trouble to get it "to go;" but after a time, I found this was my fault and not the fault of the smoker. It now gives perfect satisfaction. Some time since, I got one for a neighbor, and now he says he wouldn't be without it for ten dollars. He means it, too. During the summer, a friend called me to come and see if I couldn't do something for his bees. They wouldn't swarm, and were storing honey on the outside of the hives. I removed the honey, and found that one had thus stored 25 lbs. I put the surplus bees from two hives into one, gave them a frame of eggs, and now they are all right.

P. S.—My Report; I had four colonies with which to begin the season; from these I have made not less than $50. Will that do for a beginning?

New Philadelphia, O., Sept. 23, '78. L. S. JONES.

Now, my friends, what do these two departments prove? If nothing more, do they not show how differently we look at things? No more pains was taken to fill the orders for the friend who praises our work so extravagantly, than with those in the Growlery Department. The above three letters give me a great deal more credit than I deserve, for our work is very far from being such that *I* am satisfied with it. The Growlery has, perhaps at times, been a little more than I deserve. Shall we not look first on one side and then on the other, and conclude that we all need more charity, and more patience? I know I do, and I hope you will keep on chiding me, when I forget to do as I ought, but please, dear friends, when you complain, do it kindly.

Heads of Grain,

From Different Fields.

MISHAPS WITH BEES, AND MISHAPS WITH HONEY BARRELS.

AFTER my Italian queen had been laying for more than a week, I thought her, of course, all right. In a few days more I made another examination, and could find no eggs, but did find a young black queen and my Italian gone. Now these bees must have kept the queen cell all the time my new queen was laying, and when the young queen hatched, destroyed the fertile one, something which I think is unusual for them to do.

Had the colony mentioned above been a hybrid, and had our friend not looked as many times as he did, he might have had very good grounds for declaring that he had been cheated. I wonder if a great many of the quarrels and misunderstandings in buying and selling queens may not have come about in a similar way.

A barrel of honey was shipped here from Peoria, Ill., last week, and set upon the depot platform, and while there commenced to leak very badly; my bees having an eye to business and only two blocks off, soon scented it and, in a very little while, every bee in my apiary seemed to be on the go; the leaking could not be stopped, so the bees just helped themselves. I never saw so many bees in one place before; the air was black, and the barrel could hardly be seen, so thick were they flocking to it. Late in the afternoon, the owner came and took it away; when weighed, it was found to be 200 lbs short. J. W. KEERAN.

Bloomington, Ill., Sept 18, 1878.

I should have feared the consequences after the honey was gone; did the bees all go home without any body's being stung, after their supply was so suddenly cut off? Had you weighed your hives when the bees began the work, and again after they had been stopped, you could have told just how much honey you owed the owner of the barrel.

COLOR OF QUEENS, ETC.

WE began the season with 6 stocks of pure Italians and hybrids, in fair condition, though 3 or 4 were short of stores. Began to stimulate by feeding syrup drained from tubs of maple sugar. Fed the syrup out of doors at the rate of ½ to ¾ of a ten quart pan full daily. During the latter part of May, I found my best stock entirely out of honey, with brood in 10 frames. Bees began to swarm June 14th. Have taken off 400 pounds of nice honey and doubled my stock, and have a nucleus which I shall try to winter. Have just exhibited a crate of comb honey at our State Fair; it took the first premium and attracted a good deal of attention, as did also Novice's Honey Extractor, which received a diploma.

Now, Mr. Root, just solve this problem. Two years ago, I bought a daughter of an imported queen, of Nellis; last year when her colony swarmed I cut out the cells and made nuclei, but her queens were so near black that I killed all of them except one; this year I have bred her again and she produces very fair colored queens. The queen is clipped so there is no mistake in regard to her identity. Her colony gave me 80 lbs. of honey and is my best stock, as it was last season. If you can tell why a queen breeds dark queens one year and light (fair) ones the next, I would be pleased to have you do it. Seems to me all this talk, about imported stock being better than homebred, is gammon, though my imported bees are 5 lbs better than our homebred stock. I believe inbreeding is what ails so many bees, not light color, though close breeding tends to albinoism. Why does not close breeding take place in Italy as well as here? I believe it does, and I believe a queen reared in Italy is no better than one reared in "Old Vermont" or Ohio. I confess I have a strong liking for pretty things—bees not excepted. Have one stock (new queen) that about suits me so far as color is concerned.

Wish you would continue your researches until you can tell us how to make our queens *breed true every time.* I hatched a couple of fine cells (from one mother) a few weeks ago, one produced a fine queen, the other nearly black. Please explain all the knotty points in queen breeding, in GLEANINGS when you have the space.

Fdn. has proved a grand success with me.

East Berkshire, Vt,, F. W. CUMINGS.

I cannot explain the matter, any more than I can why a flock of ducks or chickens are variously colored. I presume by careful selection in breeding, we could get them all light colored, but shall we waste time on this, which seems to me a secondary matter? Shall we not rather choose gentleness, good honey gatherers, hardiness, etc.? If I am correct, your black queens will produce just as finely marked workers as any.

ASKING QUESTIONS.

Edison, the inventor of the phonograph, is said to have made the following remark:

> The impression has gone abroad that I don't like newspaper men, because I don't want to be bored. I like newspaper men well enough; but what I object to are those New Jersey farmers that come to see me every day, and have me explain the phonograph to them. That's what worries me. My assistant has almost grown consumptive talking to them.

The clerk of the apiary has been very patient all summer, and I thought he rather enjoyed having visitors, but a few days ago he made a remark that seemed to imply that he, too, was beginning to feel the pressure. What shall those do who want to learn? Why, come and see us by all means, if they prefer to, but an A B C book would be far cheaper, and it would stand the wear and tear of being asked the same thing over and over.

I send you a condensed report of the meeting of the South Western Ohio Bee-Keepers' Association, held in Lebanon, Ohio, Sept. 14th, 1878.

Drones can be kept for late queen raising, by taking the queen from a hive that has plenty, and keeping her in a nucleus till late, when she can be returned.

By shaking a queen cell that is nearly ready to hatch, the queen will be loose, if she is dead; but, if she is alive, she will not shake about.

Nine pounds of honey will last a moderate sized colony from Nov. 1st till Apr. 1st; but it will take 25 lb. to last a strong colony all winter and spring. Bees should be protected by chaff, if possible.

There were exhibited, a Root smoker, a King smoker, a Savage queen cage and N. C. Mitchell's patent (?) bee hive. As Mitchell is trying it get a hold in our neighborhood, I would take it as a favor if any one that has had any dealing with him, that has not proved satisfactory, would send me a short account of the transaction on a postal card, to be used at our next meeting. Did he raise any queens at Sandusky this last summer?

The next meeting to be held in the same place, on the second Friday of February, 1879. W. S. BOYD.

Hamilton, O., Sep. 21st, 1878.

Thanks; but you are mistaken about loose queens being dead. I have cut them out of the cell, and held the still white, almost perfectly formed, queens in my hand, put them back, waxed over the cell, and had them hatch out all right. I have also hatched them all right, without any cell at all, when kept in a wire cloth cage right among the bees.

Any number of Mitchell's frauds will be found in back GLEANINGS. His division board swindle has been repeatedly shown up in all the journals.

AILANTHUS HONEY.

Can you, or any of the 4,000 readers of "GLEANINGS," tell me whether the honey taken from the blossoms of "Ailanthus Glandulosa" is poison or not. J. F. BARTON.

Chicago, Sept. 4, 1878.

The matter was pretty thoroughly discussed a few years ago, and I believe the conclusion was reached that it was not poisonous, the fatality among bees, at that time, being due to other causes.

REPORT FROM A "NEW HAND."

My bees have done very well, considering the cold wet spring; bees brooded up very strong through February and March, but April and May being very cold and wet, many colonies dwindled down to mere nuclei. I started with 17 stands, and increased to 42, mostly by artificial swarming, and took an average of nearly 100 lbs. of honey from the parent hive. I took most of the honey from 7 stands; the largest amount taken from one stand was 306 lbs.,; 202 of extracted and 104 of 1 pound sections. I also made 3 artificial swarms from the same stand; from the first swarm I took 42 lbs., and from the second 48 lbs., which gives from one stock a product of their increase, and 396 lbs. of honey. I presume this is as much as a new hand should expect. P. A. REIGLE.

Arlington, O., Sept. 14th, 1878.

I should think it was as much as a new hand could expect, friend R. If you go on at this rate, I shall begin to think years of experience amount to but little, unless it is to break paths wherein the A. B. C. class may walk or rather "skip ahead."

ENAMELED SHEETS FOR WINTERING.

You do not propose to use the enameled cloth over the bees in winter, do you?

That cloth is water-proof, and if placed above the bees, will be moisture proof; that is, it will not allow the breath and moisture from the bees to pass upwards, so it will condense on the cloth and probably freeze a solid mass of ice and bees, and any quantity of chaff cushions or absorbing material you might place over the enameled cloth would be that much trouble and expense taken for nothing.

T. C. HUNT, Richmond, Ind., Sept. 20, 1878.

You are giving us theory, my friend. Practical work gives no such result; the reason is, probably, because the chaff cushions protect the enameled cloth so well that no frost ever reaches it, and consequently no moisture is ever condensed on it. I used it last winter, and shall use it again. It may not be best to follow me, for I sometimes make mistakes. If you want something porous, I would suggest the burlap. It is much cheaper than any other kind of cloth.

I am one of your A B C class, I suppose. I chopped wood last winter and bought 11 colonies, also purchased 15 more this spring, making in all 26 in box hives. I increased them this season to 64, and had one go to the woods. I practiced artificial swarming on those that were transferred. The season has been very poor in this locality, basswood being an entire failure, which nearly constitutes our surplus in a good season. I think Wisconsin equal to any State for basswood. Have sold only $45.00 worth of bees and honey, which I think looks a little discouraging.

My bees, up to Aug. 15th, did but little, but as buckwheat and golden rod began to bloom, they marched out, as you say, like a grand caravan, and just tumbled before their hives with their great loads, from early till late. They are now working on asters and smartweed the most of anything.

I have Italianized 25 swarms this season, and now have little yellow fellows by thousands. You don't know how much I think of them. I fear I am too much of an enthusiast over my bees; am with them every spare moment, and am often asked, "Why don't you sleep with them?"

I purchased my queens of Mr. S. I. Freeborn, of Ithaca, Richland Co., Wis., one of Wisconsin's most successful apiarists. He has now 350 swarms. You won't wonder that I think well of him, when I tell you that he sold me 25 fertile queens for $10.00, and several of them tested, at that.

Can I equalize my honey this fall, just as well as to feed up the late swarms? My first swarms have some to spare, I think. M. A. GILL.
Viola, Wis., Sept. 9, 1878.

It will answer just as well to equalize, as you mention, but be careful you do not rob the old stocks. I think you have made a good season of it, my friend, if you count your stock on hand at what it is worth.

Last spring, I sent to you for a pattern Simplicity hive, in due time it came, and I have used it for a a model ever since. I have made a good many hives, some of which I sold to my neighbors; they all like them very much. I also sent 12 of them up the river some 25 miles, to be filled with bees at $1.25 per swarm, all *first swarms*. They were all filled by the 10th of June, and were left to shift for themselves for the next 6 weeks, being put in empty hives, without a single starter of any kind for a pattern. The hives were not opened for 6 weeks, I being some 25 miles from them, with my hands full at home, and the man that I got them from never looked to see how they were building their comb. I must say I was a little uneasy about it, but it proved to come out all straight; every comb in the 12 hives was built as nice as if they had been supplied with fdn. You say that bees do not stick the enameled cloth, but they do stick the tins that the cloth is hemmed with, to the ends of the frames, and to the tin rabbets, so that it is quite a little trick to get them out of the rabbets, and it seems to me it will be a big job to remove them in cool weather, when the propolis is hard. ADAM HELFINCH.
Quincy, Ills., Aug. 15th, 1878.

It is a "big job," to remove anything from over the frames in cool weather, but I think you will find that the enameled cloth gives the least trouble of anything yet in use. It is some little trouble to get the tins out, but I think this is balanced by their holding the cloth so close, and so nicely in place, at all times. You can use a simple hem, in place of the strip of tin, if you prefer.

A NOVEL MODE OF MAKING SECTION BOXES.

I thought I would tell you of a little foot power machine for cutting lathing and dovetailing it for section boxes. It is one which I have invented for my own use, and which I think will work well, and can be made for $10 or less. It is made a good deal like a machine for cutting shingles, with a knife six inches long, and a gate, to one side of which is attached a bundle of chisels. I first cut the dovetails in the bolts, then cut the bolts into laths, and they are ready to put up in boxes. To prepare my lumber, I take my cross-cut, go to the woods, saw down a linden and saw off a few cuts, bolt them up, and then take them to the shop and square them into small bolts, just the length for use; finally, I place them in an old wash-boiler, and steam them, and they are ready to be cut. The steaming is not necessary, but it makes the wood cut easier. Have the knife sharp and it makes a smooth cut.

My work is not quite as accurate and smooth as yours, because my machine is not quite as perfect as it can be made. I believe it can be made to do splendid work.

Those sections made of linden, I think, look very nice and white. A. COX.
White Lick, Ind., June 17, 1878.

The sample looks very fair, and although the wood has something of the roughness and broken texture of a shingle, the clean white linden makes quite a respectable appearance. The fact that they can be made at so small a cost is much in their favor. Trees that are growing in the woods, in the morning, may be in your hives being filled, in the evening. It will require some very careful work to get the dimensions accurate, but I am sure it can be done, by a careful hand. This machine is for home use; it would hardly do for making sections for the market.

HOW TO IMPORT QUEENS.

I would like it very much if, in the next month's Gleanings, you would give your readers full directions, advice, and all necessary information, as to how to proceed to order queens *direct* from Italy. In what part of Italy can we get the best bees, the lightest colored, &c. JOS. M. BROOKS.
Elizabethtown, Ind., Sept. 11, 1878.

Go to your banker and get a foreign draft for the number of francs you wish to send for queens, as per Montani's price list in every No. of Gleanings. If he fills your order at once, you should get them in about 60 days after sending the money; at least, that is as soon as we have ever received any. Sometimes the orders are delayed much longer, and I have thought of sending to some other party because Tremontani was so slow this season. He has now, however, filled all our orders, and as no one else advertises in our American journals, I can not tell where else to send. His queens are, I think, as fine as any sent from Italy. As there has always been a difficulty in getting as many as are needed, perhaps it would be well to rig out one of our A B C class with lamp nursery, artificial queen cells, etc., and send him over there. Who will go? Don't all speak at once.

When the queens arrive in N. Y., they should be forwarded at once; but sometimes things "fail to connect," and they send on first for duties, charges, etc. We were informed with our last lot, that if they were sent only for breeding purposes, and so marked, there would be no duty to pay, and we have instructed Tremontani to so mark them. At our prices there would be a fair margin, were it not for the various mishaps. Out of 32, 2 were lost in introducing; two that we shipped were reported not in the cages when received; one would not lay after our customer got her; another proved to be a drone layer; several were lost in shipping, etc., and as we had to make all these good, in order to keep peace in the family, we had more fun for pay than money. It is fun to import, especially when we can get the most of them through alive, as in our last lot. I have never seen an imported queen that did not produce 3 banded bees.

SWARMING WITH A CLIPPED QUEEN.

I want to say to J. H. Buchanan that I can give a plan to hive bees with a clipped queen. I think it is just fun to hive them, and I have practiced this mode for some time. I take a cage, and when the queen comes out, cage her, and when the bees are mostly out, I just pick up the old hive and move it away about a rod, and set my new hive on the old stand. In a few minutes, when they find no queen with them, they come to enter the old hive, and pile right into the new one. When they get well under way, I let the queen go in, and then, as quick as they are well in, I move them to a new stand, set the old one back, and all is over. DAVID BAILEY.

Chester, O., Aug. 24th, 1878.

The same plan has been given substantially, several times; if you are on hand, and get the queen, there is but little difficulty. Should you not find her, or should the swarm unite with others, it may be more complicated.

I think your bottle queen cage is a grand success. I have kept a queen in the one you sent me with my Italian queen, for several weeks.

J. R. ANDERSON.

Washington, Ky., Sept. 11, 1878.

REPLENISHING SMOKERS.

Can you not improve your smoker so that the top can be removed more readily, when it is hot? It is so conical, the hand slips off, and it is hard to remove to renew the fire. J. B. COOPER.

Coles Station, Ill., Aug. 30, 1878.

I have studied long and hard on this very point, but have, as yet, struck on nothing that will be strong and efficient, and not add to the expense too much. I shall keep on thinking.

HOW A BOY MANAGES.

To-day is the day for my name to go out of the list of subscribers for GLEANINGS, but I hope it will go in again, in less than 5 days, for to-day I earned 35c., and my mother gave me 15c., which I send to you for another ½ year's subscription. My bees have done nothing for me this year. I had 2 swarms, each of which absconded, owing (I suppose) to improper hiving; for I gave them no brood or comb. I had 5 colonies (blacks) last spring, and have only 5 now, with no surplus honey, as yet. I think that looks rather discouraging, but I am not discouraged, for Spanish needle is now in bloom, and the bees are storing honey pretty fast in boxes. I received the buckwheat all right. I sowed about ½ of it, the 1st day of July, which is now in full bloom, and attracts a great many bees. The other half I sowed the 21st of July, and havn't had time to go and see it; for it is a good ways from the house. GEO. F. SPENCER.

Payson, Ill., Aug. 30, 1878.

An old gentleman who has kept bees for 30 years, getting from 10 to 20 lbs. of honey from a colony, when he saw me take 56 of those finished sections from a colony, said he would never be surprised at anything in regard to bees and honey in my hands; when I told him that colony had now furnished 105 of those sections, he said he never could have believed it, if he had not seen it for himself.

W. W. HOOPER.

Minerva, O., Aug. 26, 1878.

WHAT MADE 'EM "FIGHT."

Can you tell what makes bees fight after taking off a box of honey, and what will stop them?

R. H. BAILY.

Ausable Forks, N. Y., Aug. 27, 1878.

Yes; you took off your boxes at a time when robbers were around, and they got a taste, and hence the "unpleasantness." If it is necessary to do such work after the honey has failed, do not keep the hive open an instant longer than can be avoided, and if robbers "pile in" even then, remove your honey just at dusk, or by moonlight, using smoke of course.

SOFT WAX, ETC.

Yours of the 20th, inquiring if I received my imported queen, is received. You sent the queen on the 3d of July, and I received her on the 6th, in good order. I introduced her safely, she is producing nice yellow bees, and I am well pleased with her; so you can take my name off your book. I like to see that you want to have everything correct.

I will write a few lines about comb fdn., but not to complain. I have used five lots of fdn. that I have received from you, and I never was troubled with sagging, which many complain of, except in the last lot; the wax was so soft it would melt down by the heat of the bees. I then put in strips only 4 inches wide and between two combs, and they would tear down. Could not such soft wax be hardened in some way, so that it would not tear down? If not, I think it would be well to put in some wire, or something else, to prevent stretching and tearing.

I. G. MARTIN.

Reidenbach's Store, Pa., Aug. 26, 1878.

Thank you for reporting. Some wax, I know, is too soft for combs unsupported, but this same soft wax is worked out much faster than the hard, firm wax. There may be a process devised for hardening it, but I think the wire supports will be best.

CALIFORNIA AGAIN.

I had 80 swarms in the spring and have now over 500, and have taken over 10 tons of honey. I find that bees are not half taken care of, as a general thing. I know, from trying a few, that I have not taken care of a good many of mine. A man that don't know how to take care of bees can handle 4 or 5 hundred; but a man that understands taking care of them can do about as well with 25 or 30 stands, as the other man with his 500. I will send you a statement from our paper. JEFFERSON ARCHER.

Santa Barbara, Cal., Aug. 18th, '78.

FOUR MONTHS' WORK.

To the Editor of the Santa Barbara Press:

According to promise, I herewith present my fourth monthly report of the progress and proceeds of those *four stands of bees*. From one of mine, I now have 16 swarms and have taken 436 lbs. of honey. From the one that I have prevented from swarming, I have taken 405 pounds of honey.

Mr. White's swarm has increased to 15, and he has taken 390 pounds of honey.

Mr. Stone's swarm has increased to 10, and has yielded 157 pounds of honey.

During the first three weeks of this month, the weather was so cool and damp that the bees did not gather large quantities of honey, and owing to the condition of the weather, I could not use the extractor, otherwise this month's report would have been much more favorable.

Out of the three Italian queens I sent for, I have one first class queen, and am raising as many from her as I can; and am now prepared to furnish young fertile queens, from an imported mother at $1; tested and warranted queens, $3.

JEFFERSON ARCHER.

Santa Barbara, Cal., June 29th, '78.

HONEY DEW.

We have a large plant of Camellia Japonica; for many years, this plant has distilled from its large, shining leaves, large drops of thick honey or syrup resembling in taste grape sugar. Camellias are never visited by aphides, and this plant, being large and spreading, stands solitary every winter. We have intended to send you some of these honey producing leaves, for the last two winters, and should the phenomenon occur again next winter, will surely mail you a few specimens. STAIR & KENDEL.

P. S.—The honey can not come from the flowers, as it appears when the plant is not in bloom.

Cleveland, Ohio, Aug. 27th, 1878.

The sections are a success, this time, go together just right, and are the exact size, making everything work smoothly. I think Foreman's fdn. fastener can be made to fasten clear into the corners of the frame, by having the end of the handle properly shaped, with a flat face, and edges square, so that it can be pressed into the corners, instead of the roller. CHAS. H. RUE.

Manalapan, N. J., Aug. 27th, 1878.

CALIFORNIA.

The honey season is over, after 100 days of extracting, and we are glad of it. Atwood and myself have taken 70,000 lbs. this season. We had 188 stands in the spring, increased to 300, and made all our combs for extracting, also for the new colonies. Our best work was 2,300 lbs. in 6 hours, all capped. R. W. has taken 45,000 lbs., and has 420 colonies. He and Mr. A., my partner, are going to Europe. They have in their care 150 tons; other parties are sending by them—J. G. C., J. H., and others; there is no market here. Quotations are 5 to 6c in San Francisco. I think there has perhaps been 300 tons produced in this county, this year. I think our average is far above anything ever done in California before; we frequently took a ton a day. The best swarms made 6 lbs. per day, for 10 days. We use the L. hive, 10 frames below, and 8 above.

Your friends, A. & K.

Scenega, Ventura Co., Cal., Aug. 24th, '78.

P. S.—Please insert no names, if published. K.

We are just now getting lots of honey, but it sells for nothing. Yet it is a good thing to have in the house. WM. C. GRIER, Lamar, Mo., Sept. 3, 1878.

ONE TIER OF SECTIONS OVER THE BROOD.

My bees are doing poorly, this year, only one or two out of sixty filling an upper story. Two tiers of boxes above are too deep this year, and I hope you will walk around the C. S., and evolve some way of putting on one tier, without the expense of another set of cases. I have tried two or three ways, and don't find it yet. Buckwheat sections sell here for 12½c.; clover sections 15c.; white ext'd 10c.; dark ext'd 8c.

RIPENING THIN HONEY.

Freeborn and Hatch, of Richland Co., I understand, are candidates for "blasted hopes," having 400 or 500 stocks, with thin buckwheat honey, their only stores. Now, if it were my case, I should reduce those 500 to 100, extract that thin honey, and make vinegar with it, and feed up on A sugar; I think I would thus have 100 good stocks next May, that, with the empty combs, would easily be increased to 400. R. L. JOINER.

Wyoming, Wis., Sept., 2, 1878.

Why, it is the easiest thing in the world, friend J., to give the bees only one tier of sections. Cut some strips of wood, or even pasteboard, 3⅞ inches wide by 14⅛ inches long, and lay them across the bottoms of the upper tier of sections, and not a bee can get into the upper tier. Only 4 of these strips will be needed to a hive, and when you want to let the bees above, you have only to remove these pieces. To put them in or take them out, tip the upper story partially on its side, and then draw all the frames of sections (all together) out half way. When fixed let them all slide down in their places again, and wedge up as they were before. I have never mentioned this, because I have not been satisfied that it was of enough advantage to give them one tier at a time.

If your neighbor's bees are crowded into so small a compass as to cover the combs densely, I feel sure they will ripen and seal the honey. Take a hive and remove half the combs, and confine the bees on the other half, by a division board, keeping them entirely out of the vacant side, and see if the honey is not ripened. If you crowd a part of them out doors, in hot weather, it will be just right.

MR. LANGSTROTH, ALSO SOMETHING ABOUT DIVISION BOARDS.

In a recent conversation with the Rev. L. L. Langstroth, upon my referring to Mr. Mitchell's selling patents on the movable division board, Mr. Langstroth handed me a book on the *Hive and Honey Bee*, written by himself, in the year 1853, and referred me to page 97, from which I will give you an extract:

"While the hive is of a size adapted to the natural instincts of the bee, it should be capable of being readily adjusted to the wants of small colonies. If a small swarm is put into a large hive, they will be unable to concentrate their animal heat, so as to work to the best advantage, and will often become discouraged, and abandon their hive. If they are put into a small hive, its limited dimensions will not afford them suitable accommodations for increase. By means of my movable partition, my hive can, in a few moments, be adapted to the wants of any colony, however small; and can, with equal facility, be enlarged from time to time, or at once restored to its full dimensions."

This same partition, or division board, was patented by Mr. Langstroth, 25 years ago, and used by him as long as he kept bees.

I have no desire to injure Mr. Mitchell in any way, but I do think that the bee-keeping public should be warned against his agents, who are threatening to prosecute people, for using an article upon which the law will not sustain his patent, if he has one.

D. A. MCCORD, Oxford, O., Sept. 10, 1878.

P. S. I am happy to inform you that Mr. Langstroth's health is much improved, and I think he will do something more yet for the benefit of bee-keepers. D. A. M.

The volume mentioned has long been among our books, and the quotation is a correct one. I have not before mentioned it, because it scarcely seemed worth while; but, if we are to have such complaints of blackmailing as we have had lately, it may be a good idea, after all. We shall all most heartily rejoice to hear from Mr. L. once more, even though it be only a few brief words.

I am glad to say, there seems to be a prospect of Mitchell's doing better; for he has just sent our friend C. T. Smith, whom he has owed so many years, 4 queens on the account.

Well, I never saw bees so cross as these hybrids from the queen I bought of you. I have use for the novice smoker now. WM. ST. MARTZ.

Moonshine, Martinsville P. O., Ill., Sept. 9, 1878.

FLORIDA.

From the two hives bought of you in the spring, I have never taken one ounce of honey; the bees have eaten all there was when the hives were sent; winter is approaching; would you feed? and what food?

I have successfully raised two beautiful queens, and made two swarms from my first two hives. I have not a drone now. How am I to get drones when I want to raise a queen?

In swarming time (spring), if I go over my frames and see that there are no queen cells being made, is it possible for me to avoid all *natural* swarming and just divide the swarm myself, when the hives get too full?

I have *hopes* of having some honey to eat next spring. The queens I raised myself are much larger, and of a much more golden yellow than their mother, and their bees more gentle.

G. W. WOLFE.

Jacksonville, Fla., Aug. 31st, 1878.

It is not at all strange that the bees have eaten up all the honey they took with them from Ohio, if they have found none in your sunny land of Florida. Had they remained here, I am sure they would have stored at least 50 lbs. apiece.

I fear, my friend, you have not quite got the run of the business yet. It is a pretty hard matter to get the bees to rear drones when there are none. Heavy and constant feeding for a considerable time is the only way I know. You can prevent natural swarming usually, but not always. I am very glad to hear you can raise nicer queens than we do, and sincerely hope you may have some honey next year to eat. If you do not look out, you will make a bad report for Florida. See feeding and feeders in ABC.

A YOUNG QUEEN WITH A FIRST SWARM.

Did you ever know a hive to cast a swarm, when a young queen accompanied the swarm, while the old queen remained in the parent hive? On Aug. 9th, a hive of hybrids cast a buckwheat swarm with a young queen fertilized and laying, leaving a prolific old queen and several queen cells capped over, in the old stock. I am certain about this, for I had clipped her wings six weeks previous, and she had made no attempt to swarm. I destroyed the cells and both swarms are doing well. **Chas. Dodd.**

Colborne, Ont., Canada, Aug. 31st '78.

Although such cases are not very frequent, they do happen now and then. I will suggest that it comes about in this way. The pasturage is good, and queen cells are started; before they are ready to hatch, the yield slackens, and, instead of destroying all the cells, one is allowed to hatch and become fertile. I judge this to be the case, because I have frequently found two laying queens in a hive, after cells have been torn down from a cessation of pasturage. Now, if honey should start up again, the young queen would be as likely to lead out the swarm as the old one; perhaps, more so. And after swarming you would find queen cells in the parent hive.

Since we have had a lull in business, we have been sending statements to everybody that owed us, so we could build the factory, you know; and, that we might have no one sided work on it, I also instructed the clerks to send statements to all those to whom a balance was due. Below is a sample of some of the replies. We shall never put anything in the "corner stone" fund, unless desired to do so.

I only wish the balance was $30, instead of 20c. If I had money, I would order immediately 5 queens, and 20 or 25 chaff division boards with one side loose, so I could fill them with chaff myself. Then I want, this fall, 10 more chaff hives in flat, and fixtures for same, and next spring, will want ever so much fdn., and sections innumerable; yes, and "GLEANINGS" runs out in December and, Oh, my! don't put it in to the "corner stone" fund just yet. **G. W. Gamble.**

Fredericksburg, Wayne Co., O., Sept. 4, 1877.

ODOR FROM BUCKWHEAT AND KEEPING HONEY FROM "SWEATING."

The perfume of our apiary is delightful, and is discernible at some distance. Some think it is from buckwheat, but the honey is so light that we think it is from golden rod. We have put our honey up stairs and down stairs and in "my lady's chamber," yet it will sweat. How can it be kept dry?

Peoria, Ills., Sept. 2d, '78. **Mrs. L. Harrison.**

The odor from buckwheat is very unpleasant to most people; at times, it has something about it almost approaching the odor of carrion. I think it far more likely that your honey is from the golden rod. If it is in an upstairs room where it does not freeze, it should keep free from dampness. We have kept it the year round in our store, without any unpleasant "manifestations." Possibly, the source from which it was gathered may have something to do with it.

QUICK WORK IN REARING QUEENS.

I had young queens hatching from the brood of my new imported queen, on the 17th day after she was received. They are large and yellow.

E. M. Hayhurst.

Kansas City, Mo., Sept. 2d, 1878.

Well done, friend H. If you will tell us just when the first eggs were laid, we can tell whether it is possible to hatch a queen in less than 16 days, or no.

BEE-KILLER.

The fall bloom is splendid, but the "bee-killer" has about ruined our chance for a surplus. Colonies which were very strong 3 weeks ago look as though they had swarmed; but they havn't. It makes a body feel rather blue. **W. J. Willard.**

Jonesboro, Ill., Sept. 6, 1878.

I am inclined to think, my friend, that you exaggerate the danger from the bee-killer, and that the depletion of your stocks is due rather to the usual cessation of brood rearing, in the latter part of the summer.

MISHAPS IN INTRODUCING.

I examined one of my hives 3 times, and there was neither brood, eggs, nor queen, that I could see, so I introduced the queen you sent, and then found that they had a miserable thing of a queen, which killed the one I sent for; no blame to you.

John Dawson, Pontiac, Mich., Sept. 2, 1878.

The above illustrates the danger of introducing a queen to a hive, without finding and removing the old queen. The fact that you can find no queen, or even the absence of eggs and brood, is not a sure evidence of queenlessness.

ITALIANS AND SWARMING.

I have created some excitement here with my section boxes of nice honey. Have worked 43 hives this season, with satisfactory results.

Last August, I put an Italian queen into a black colony; from that hive I saved seven swarms, and two went to the woods. All were natural swarms. I find them harder to manage, during the swarming season, than the blacks, often having to hive them two and three times. One left young brood that I gave it. I put blacks in the same hive, and they remained. No black swarms went to the woods.

L. G. Rucker, Patrick C. H., Va., Aug. 29, 1878.

CHAFF WINTERING, ETC.

Last winter, I tried different ways of wintering my bees; I put 29 hives in a cellar, lined 3 with old carpet, put straw around 3, and packed 5 in boxes, surrounded with chaff. Those packed in chaff did, by far, the best. By the way, I have kept bees for 20 years, but have lost more or less in wintering, or in the spring, every year but one, for 17 or 18 years. In the spring of '76, I lost 30 out of 46; in the spring of '77, 25 out of 30; I then bought 12 hives, and made out of them and my 7 weak ones, almost twice enough to pay for them. It is very necessary to examine hives that have cast swarms; also all after swarms, after it is time for the young queen to lay. I found two of my hives that had swarmed queenless, and would surely have lost them, if I had not furnished them with means to rear a queen.

B. Finch, Gallupville, N. Y., Sept. 6, 1878.

REPORTS ON QUEENS.

I received my queens all in good condition. You put them up in a better way than some other parties who send them, and I am thoroughly satisfied with them. **Adam Klippert.**

Waterloo, Ont., Canada, Sept. 2d, '78.

The queen bee I ordered from you came promptly, and I successfully quartered her in her new home, although it was my first effort in that business. I thought her to be a nice queen, but have awaited developments before writing you. I supposed I was going to have golden colored bees, such as I could pride myself on; having a queen from an imported mother, what should hinder me, when such a good bee man as Mr. Root sent her? I must confess my disappointment in her bees, as they are only hybrids, and not marked well, even for hybrids. I have better bees and more prolific queens. I took my chance, but if foreign mothers can not Italianize better than this, let us stay at home.

Jont. W. Leuben.

Pendleton, Ind., Sept. 9th, 1878.

It gives me pleasure to inform you that I introduced my queen successfully, and I now have splendid yellow-backs. I also must say that she came to hand in the very best condition, and every bee was in good shape. **Isaac Rummell.**

Warren, Ohio, Sept. 9th, 1878.

Our Homes.

Humble yourselves in the sight of the Lord, and he shall lift you up.--James, 4; 10.

AT one time, in the spring, after paying all my debts, I had about $3.000 in the bank. The building I now occupy was soon after sold for $4.500, so that I then had, subject to my demand, about $7.500. Nearly all my life, I have been pretty badly in debt; for, just about as soon as I saw any prospect ahead for taking things a little easier, I almost invariably got hold of some new speculation, and so it went. At this time, I had been praying and striving to overcome this besetting sin, and it seemed a little strange to myself, that I had no disposition to think about this sum of money, which was really a little more than I ever expected to have all at one time. There was a strong tendency to relax my usual industry, and to grow a little important; but, as I was all this time laboring with the boys in jail, and with others who needed work, and who could not well be reached in any other way, I kept pretty humble, considering my natural disposition, and when some new hand asked for a place, and promised to lead a better life if it was given him, and the place came in answer to prayer, I could but feel that all this business, and money too, was a sacred trust given into my charge, for which I would be held responsible. The sum mentioned above was to build the factory, and to pay for the ground.

To enable you all to have your goods with the least possible delay. as well as to save expense, it was thought well to have the factory as near the R. R. station as possible, and about two acres of ground was deemed necessary. After looking at all the eligible land in the vicinity, some one started the idea that the county fair-ground would answer nicely, if it could only be had. I took in at a glance, the ground, sloping gently to the south and east; the pretty patches of woodland; the stream of water; above all, the fact that one corner came right close up to the station, nearer than any piece of land that could be purchased; and, with all the rest, I thought of the advantages it would give for a mission work in our town. The station has seemed a favorite place of resort for those of a disorderly turn, and there is much Sabbath breaking about there; what effect might the morning Bible class have on the vicinity? Already I saw, in my mind's eye a neat little chapel, for this class on the Sabbath, and a reading room during week days, for the hands, or whoever else might care to use it. I made a good cash offer for the grounds, but, as they belonged to the people, a day had to be fixed some time ahead, for the consideration of the subject. The matter was talked about in our morning Bible class, and I told the boys that, whatever the people might decide on, God would give it to us, if we showed ourselves in real earnest in carrying on His work. As the time proposed for the decision came near, much was the talk in regard to the matter, and many were quite vehement in declaring that I should *not* have their fair-ground. I prayed that, if it was best, the ground might be given us, and not only that, but that the minds of those who objected might be changed, and that it might be given with a hearty good will. The day came, and the decision was made, that I could not have it.

I believe that answers to prayer may almost always be explained, by those who are disposed to do so, as coming about in some other way; and, in this case, it might have been said that our people, at just about that time, began to be interested in the reformations that were gradually taking place among the young men, and to associate them with the Bible class, and the factory. A sort of reaction took place; another meeting was called, and it was decided that I could have the property at my first offer. If the prayer for this object had no effect on the people, it certainly had on myself, for I felt it to be so sacred a matter, that I entrusted it all in God's hands, and took no part in the talk myself, being perfectly willing to trust my own town's people to do what was right and best. A very sensible thing to do, say you? Well, I believe the effect of earnest prayer is to make one sensible, and that one who prays over his work will generally do it, in a safe and sensible manner.

The 17½ acres of land, with its buildings, cost me $3.500, and I had $4.000 left, with which to build the factory. Our trade is always dull in the fall, and I knew, from past experience, that I should run short; for, with the new printing press, new engine, and other expensive machinery, I feared I could not get into any kind of working trim less than $8.000. Without saying anything to anybody about it, I calculated that, after I had got the building as far along as I could with what money I had, I could get enough on a mortgage to finish it, and that the next season's trade would pay it all up. I did not know but the "Growlery" would take off some of the trade, if the complaints were allowed to come out in an honest way, but I calculated to reform myself somewhat, as well as the boys. Toward the first of Sept., before the roof even was on the factory, the money at the bank was all gone; and, what was still worse, although I had had thousands there a few months before, without getting a cent of interest for the use of it, I found that I could not get any more, without paying ten per cent; still farther, I must have *two* good signers to back me—signers who were owners of real, broad acres. Our friends in town, who were owners of stores and buildings, would not do; they wanted sound, substantial farmers. Would not a mortgage be security enough? They did not take mortgages at all.

Now, for years, I have prided myself on the fact, that I never asked anybody to sign with me, and therefore I have excused myself for not signing with anybody else; and I presume I had got to feeling a sort of pride in my name, which was unencumbered with any responsibility for other people's debts. I got a little important, and declared

I would not ask anybody to sign with me; but Saturday night came, and the boys and girls came for their pay, as usual, never dreaming that the money would not be forthcoming, as it always had been. I reasoned with myself, that they had no business to expect their wages always so promptly; that other establishments were sometimes a little behind, and why should not I be? A few looked disappointed, and when I learned of one who went without the needful things of life, because I had not been as prompt as I had led them to expect me to be, my heart smote me. Perhaps, he had just such a soft blue eyed baby at home as mine, and it might be that I had been the means of depriving this little one of comforts, because the father could not have his small earnings on Saturday night. As I went home, in the darkness of the night, I bowed my head to the ground, in the damp grass, under the apple trees, where I had gone many times before, and asked Him who never refuses to go our "security," when we are in the right track, to show me wherein I had erred, and to tell me what to do. When Jesus healed the blind man, he told him to go and wash; when he healed the sick man, he told him to take up his bed and walk; and when he fed the multitude, they were first required to sit down on the grass in fifties, &c.; now, I do not know that a prayer of mine was ever answered, unless I went right to work. But, we often hear asked, could you not go right to work just as well without praying? To be sure I could, but would I go to work in the same way? I leave you to judge. As a natural consequence of being refused money at the bank, I imagined that the people at the bank treated me with a sort of lofty indifference; and my first impulse was to declare that I would have nothing more to do with them, but that I would deposit my money elsewhere, &c. After kneeling in the grass, however, my work was very plainly shown to be, to root out all those feelings, to bear "snubbing," if such came, with patience, and to take a far humbler place than I had been holding. Instead of getting mad at the cashier of the bank, and declaring that I would never have anything more to do with him, I went and stated plainly to him my exact circumstances, and asked his advice. This put both him and myself in quite a different light, and he was the same good friend he had always been. The truth of it was, he had never been in the least unfriendly. Do you know what a hard thing it is to do, to refuse to trust an intimate friend and acquaintance? If the cashier of a national bank could not do this, he would be totally unfit for his position, and would most certainly lose it. I know of nothing but prayer, that takes "kinks" out of a body, and shows them just where they belong.

"If you object to asking anybody to sign with you," said he, "give your signers a mortgage, and thus secure them from running any risk."

What a sensible piece of advice, and yet it had not occurred to me before. Furthermore, he volunteered to lay my case before the bank directors, and see if an arrangement could not be made, whereby I might have credit for all money taken in, and be charged interest for only what I used, and no more. If I were to borrow money for a year or more, I could easily get it for 8 per cent, but then I should be obliged to keep a considerable sum lying idle in the bank, just to have it ready as needed. The arrangement spoken of was made, and all that was necessary was to get the two names of considerable land holders. A relative by marriage said his father would sign with me willingly, but that his mother must not be told of it. In my way of thinking, man and wife are one, and I made my request to both. The old gentleman seemed quite willing to accommodate me, but his wife, whom I knew well, having got acquainted with her in my mission work, strongly objected. Said she:

"As long as you are alive, Mr. Root, I have no fear; but should you die, and the property be sold under the hammer, it might not bring even $2,000. We are old people, and it would be a sore trial to us to be worried with such business. We worked hard for our few acres, when it was all woods about here, we have lived humbly and carefully, and we wish to end our days quietly, in the same way."

What a wicked thing it would have been, to have secured her husband's name to any paper without her knowledge, and to have worried her in her old age, even if she had been extreme in her ideas. God forbid that I should ever get out of troubles in that way. Saturday night was coming again and not enough to pay the hands, and yet I shrank from asking anyone else to be responsible for my business speculations. I stated the matter to a member of our church, who owns considerable property, and although he did not refuse, I saw plainly that he preferred not to do it. He very kindly told me, that people were talking about the probability that I would get "swamped," in trying to do things on so large a scale, because my business was something that few could understand: if I wanted to buy a farm, or go into a store, or start a lumber yard or blacksmith shop, it would be readily understood; but the idea of employing half a hundred hands, in a business that even I myself can hardly give a name to, is, to average persons, a mystery. Said he:

"Mr. Root, your whole work is out of the common track; it is, as it were, a constant experiment. Your mission Sabbath schools and Bible class, your bees and your bee journal, have all elicited wonder and surprise; but everybody, almost, thinks them transient things, and we have looked to see them go down long before this time. We rejoice to see you looking to God for help and guidance, and our faith in you is constantly increasing."

I knew that what he said was the truth, yet the old pride kept coming up as I replied:

"I could have built a wooden building and had it all paid for; or I could have built smaller, at the risk of having to build again in a year or two; or I could have purchased a smaller engine, and printing press; but all these things would have been poor policy in the end. I can stop all my hands on the building now, and let it stand without a roof, until I can earn some more money myself."

"No, no, you must not do that; I will get you the money to pay your hands to-night, and we will fix it before another week, so that you will get along."

Do you know how much good such a friend does a body? My wife and I knelt together in our own room, and asked God to tell us what to do, to avoid trespassing on the good nature of any one, or making anybody responsible for our own affairs. As it had been intimated that trouble might ensue should I die suddenly, she suggested that I should have my life insured for the benefit of my estate. This was done, and a mortgage given, the signers being my father, and a friend who has for many years been the superintendent of our Sabbath school.

This experience has humbled my pride in several ways, and has taught me several useful lessons. The first is, to be very careful how you let your business get into such a shape that you cannot always pay your debts easily, without involving others. A case right in our own town was shown me. Our hollow-ware foundry cost $18,500, and was mortgaged for $6,000, which everybody thought very safe. The mortgage was foreclosed, and after trying a long time, the property was sold for only $4,500. Can we blame people for being backward in taking mortgages, or for hesitating about signing? Do we want our banks, that are the depositories of so many people's money, to be accommodating at the expense of running risks? or do we want them to make every transaction safe beyond the *possibility* of loss? I prefer the latter way, and if the inconvenience of it falls on my own head, I hope I may have the grace to bow in humility. Again; the banks pay nothing for the use of money, but will not let it out at less than 10 per cent, and even then, they demand the very best security, hold a judgment note, and will not take a mortgage on real estate. Are they charging too much? Very well, do not find fault, but just quietly start a bank yourself. But you say you have not the money. It may not be entirely your own fault that you have not got it, but it comes so near it—in my opinion—that I think you had better trade or not trade with them, as you think best, and stop criticising. In the city of Cleveland, I am informed, there is a savings bank, that pays 6 per cent. for money, and loans it for 7. Such an institution in a small town would be a great convenience, and would also help poor people to save their money. Many of our boys whom I am very anxious to see get ahead are, I fear, paying out their money thoughtlessly, and to encourage better habits, I have had a card put up over the time clerk's desk as follows:

TEN PER CENT INTEREST,
PAYABLE MONTHLY,
Will be allowed any of the hands who have money they do not wish to use immediately. A. I. ROOT.

Some have laughingly told me that I can not stand such a rate, but I certainly can afford to pay it to my hands, as well as to the bank. Nearly $100 are in our little savings bank already, and one of the boys is trying to save enough to buy him a little home near the factory.

It is now 5 o'clock in the morning. What a grand thing it is to be at work thus early, and to feel that you are abreast of all your duties, instead of having them driving you. It is like having the money to pay all bills as soon as due, or as soon as called for.

The third lesson I learned by the little transaction I have narrated, is to set no one at work, and to make no purchases, until I am sure of having the money ready to pay them when it is called for. There are those, I know, who do not care about being dunned, and who seem to think that the reply, "I havn't the money," is reason enough for not paying, and can go along afterwards with an untroubled conscience. I do not wish to judge them, and I try to have charity for them; but it seems to me a most galling thing, to have a fellow being say, "You have got my money; I want it," when you cannot hand it over. If you have not got it, and know of no place or way by which you can get it, may God forgive you for ever having incurred the debt. If you cannot possibly pay it, can you not get your creditor to assent to giving you a few days to bring it about; If he does, let me implore you to hold that promise sacred. Sell your property at almost any sacrifice; work for 25c. a day; live on the cheapest fare; wear any sort of old clothing, and be laughed at a hundred ways, if need be; but keep your word, until your friends learn to depend upon it as they would on the rising of the sun.

To those who have failed in business, and paid nothing, or only a few cents on the dollar, I have nothing to say, and would, by no means, give them needless pain, but the young men, those whose names are yet without any such blemish, I would urge, with all the vehemence I possess, to guard against such a thing, now, while there is yet time to be warned. If you are going to incur risks, or to take chances, do it with your own hard earnings, and not with other people's. Think what a fearful thing it is, to have it said, as you pass along the street:

"There is a man, who owes me money, which he will never pay. He took my hard earnings; the dollars I gathered slowly, one by one, by the sweat of my brow; the money I needed to clothe, feed, and educate my children. May God give me charity, and help me to forgive him the grievous wrong he has done me and mine."

Think of going through life with such a load resting on your shoulders; think of lying down at night year after year, haunted by such thoughts; think of the price you will pay for indulging in something beyond your means, which you could have done without. It is this kind of work that robs us of the innocence of childhood, that embitters people against their fellows, that spoils faith in Christianity, and breaks down churches. Is it not far better, my friends, to humble ourselves? and, if it comes down to plain bread and butter, let it be honest and innocent bread and butter. If we cannot have more than a log house, and pay our way as we go, may God help us to be satisfied with the log house. It seems to me, just now, I would rather have the log house anyway, if it was out in the woods, without any road to come to it, but then I could not give so many hands employment, and I should be leading a selfish life, so I guess I will try to do the best I know how, just where God has seen fit to put me.

It is later in the day now,—and the clerks are all about me, asking questions as usual, and perhaps some of them are doing their work carelessly, as usual. I guess I will commence reforming *myself*, by trying not to scold any to-day; if I carry out this good resolution, some of them may look at me in astonishment, and think perhaps that something is the matter, but never mind, I am going to try hard. Help thy servant, O my Savior, to perform his duties better, and to take a humbler position, nearer to thee, and low at thy feet.

GRAPE-SUGAR.

WRITTEN BY ONE OF THE MANUFACTURERS OF IT.

IN order to give a distinction between glucose and grape-sugar, as these two different articles are commercially known, I will say that the first is a heavy, gummy syrup, of about 40 per cent. glucose, or grape-sugar, 46 to 48 per cent. dextrine, and 12 to 40 per cent. water; the latter is a concrete mass, without crystalization, of 66 to 70 per cent. grape and glucose sugar, 5 to 6 per cent. dextrine, and the balance water.

Both articles are made in this country, out of corn starch, such as is used for pudding and other culinary purposes, only that the starch is further purified to get rid of the glutin, a very important substance as food for man, but objectionable in this manufacture. The convertion of the starch into dextrine or soluble starch and grape-sugar is done by sulphuric acid. This chemical is removed again by marble or chalk.

In preparing grape-sugar for feeding bees, we make it our special object to remove all sulphuric acid, and afterwards, the resulting sulphate of lime. Our grape-sugar for feeding bees is guaranteed to be free from sulphuric acid, and never contains more than 1-50 part of 1 per cent. of sulphate of lime. Both glucose and grape sugar pass through different refining processes, which are almost the same as in our sugar refineries. Starch can be converted into sugar or dextrine by means of malt also, as is done by distillers of grain and brewers. In baking bread, a large part of the starch in the flour is converted into dextrine, and a little grape-sugar is also formed.

The celebrated malt extract consists mainly of dextrine and grape-sugar, and it derives its valuable nourishing power for convalescing people, from these two substances. As a sweetener in coffee or tea, and for other culinary purposes, grape-sugar is not cheaper than cane sugar; as its sweetening power, even in its chemically pure state, is only ⅓ of the latter. This may be the reason that they have given up its use in the hospitals of Paris. However, I know that there are large factories of "dry glucose," or grape sugar, in France, and that its manufacture is not forbidden there, nor is its use for brewing beer forbidden in Germany.

In order to compare the value of cane-sugar with grape-sugar, such as we offer for feeding bees, I would say that I have analyzed 100 or more samples of refined sugars, and found that "coffee A" sugar contains 90 to 93 per cent. of pure sugar; powdered, granulated, or block sugar, 97 to 99 per cent. of pure sugar.

As a food, dextrine is probably as valuable as grape sugar, and the latter is as valuable as cane sugar. Therefore the difference between commercial grape sugar and the best dry cane sugar, cannot exceed 20 per cent in favor of the latter.

I would further say that honey consists mainly of grape sugar, some fruit sugar, a much varying percentage of cane sugar, and sundry flavoring substances. If you wish to detect any adulteration, take the honey mix one part water, and add alcohol of 80 per cent, until a turbidness is formed which does not disappear when shaking. If glucose syrup is present in the honey, soon a heavy deposit of a gummy, milky mass, will form; while with pure honey, there will be only a very slight milky appearance observed.

In Germany, an experience of 15 years and over has proven that grape sugar, if carefully prepared for the purpose, is excellent and wholesome for bees, and never costs more than ½ to ⅓ of cane sugar. In this country, we have sold grape sugar to about 200 different parties and receive duplicates of orders daily.

I think I have exhausted the subject and will finish up here; however, I will be ready to answer any other questions asked.

LEWIS BEST,
Sup't Davenport Glucose Manufact. Comp'y.
Davenport, Iowa., Sept. 20th, 1878.

In addition to the above, it may be well to quote from Mr. Langstroth's book, page 273. Bear in mind that this statement has been before the people for more than 20 years. Referring to grape sugar, he says:

> It can be obtained at a much lower price than cane-sugar, and is better adapted to the constitution of the bee, as it constitutes the saccharine matter of honey, and hence, is frequently termed honey sugar.
>
> It may be fed either diluted with boiling-water, or in its raw state, moist, as it comes from the factory. In the latter condition, bees consume it slowly, and, as there is not the waste that occurs when candy is fed, I think it is better winter-food.

Now, my friends, I have waited patiently for you to tell me of some way for feeding grape sugar in frames, as we do candy; but as none of you have done so, I just "walked around the stairway," and did it myself. Although it is a very simple matter indeed, it is destined, I think, to prove an invention of considerable importance. Take your grape sugar as it comes out of the boxes and barrels, and put it in a new tin pan on the stove. Be sure you do not put in a drop of water. Heat it gently, and it will, in time, become so soft that you can mash it all down into a kind of paste. Fix your frames precisely as directed in the A B C, for candy making, and spread your grape sugar into it nicely and evenly, and let it cool. In an hour or two, you can hang it in the hive; and there is your feed for 4c. per lb. We will put it into frames for you, for 5c. per lb.; but it will be much your cheapest way to have it shipped by the barrel, and put it in the frames yourself. You must not undertake to winter bees on this alone, because it may get too hard and dry; but, with some honey to go with it, it will do very well, and for brood rearing, I think it is even better than honey, probably on account of the dextrine.

Notes and Queries.

SEVERAL EGGS IN ONE CELL.

Did you ever have a case like the following? My neighbor has a queen that lays from 8 to 10 eggs in one cell; in fact, she just piles them in. I can't account for it. I like your smoker very well; I would not do without it for twice the money.

JOHN F. MEYER.
Wyandotte, Kansas, Sept. 3, 1878.

[A fertile worker often lays several eggs in a cell, and a drone laying queen sometimes does the same;

a good queen never does, unless she is cramped for room. In this case, she will go over the cells a second time, and lay two or more in them all. The drone laying queen and fertile worker often put several eggs in one cell, and none in the next; we generally recognize their work by this, even before any of the larvæ are sealed over.]

SITTING HENS VERSUS LAMP NURSERIES.

Hang up your lamp nursery. I am hatching queens in clam shells under sitting hens. Have three hens at the business. Two do not take to it, but prefer to sit standing. The one that *tends strictly to business* hatches out every cell. A. JACKSON.
Deposit, N. Y., Sept. 18th, 1878.

Please send me a copy of GLEANINGS. I have a copy of your A B C of Bee-Culture, that cost me $1; on the cover, the price is 25cts.; please explain. Have you agents in this county? I think the book is worth all I paid for it. CICERO HANCOCK.
Morganfield, Ky., Sep., 3d, 1878.

[The above transaction speaks badly for the man who sold the book, but well for the book. Thanks for your good opinion. As we sell them for 15c. by the hundred, your agent can well afford to sell them for the price marked on the cover. It was put there purposely, to prevent such "speculations."]

Your postal, of Aug. 16th, came to hand in good time; but the queen has not arrived yet. I fear that the express company have got her ladyship off on a telephone concert somewhere. C. THOMSON.
Brighton, Mich., Aug. 19, 1878.

P. S. Since writing the above, her ladyship has arrived all right—a perfect beauty, without paint. Thanks. C. T.

WHICH IS CHEAPEST?

If it takes 20 pounds of coffee sugar to winter a colony of bees, how much grape sugar will it take? Or, in other words, how much cheaper is grape sugar than coffee sugar for feeding bees? I read Dadant in Sep. A. B. J.; give me your honest opinion.
Martonsville, Ky., Sep. 18th, 1878. J. T. WILSON.

[See article on another page. From the experience I have had, I would guess at it, in about this way: if grape-sugar was 7c., and coffee A sugar 10, I would take the latter. If the grape-sugar was 6, I would take the grape. As it really stands in the proportion of about 4 to 10, I think the grape-sugar a great saving. It will not pay to order any kind of sugar by express; sugar goes at a very low rate by freight, in quantities of 50lbs. or more.]

HOW LONG WILL A SWARM OF BEES KEEP TWO LAYING QUEENS?

This is the fourth season for a queen which I purchased of M. Argo. About the first of June, I noticed the bees had started queen cells, and concluded that they intended to supersede her. The latter part of June, I found a young laying queen in the hive; then in July, when extracting, I found the old queen still there, and there she has been ever since, as well as the young queen which was raised. At least, they were both in the hive a week ago, when I opened it to show a beginner the curiosity.
Hudson, Ill., Sep. 13th, 1878. EDGAR SAGER.

Send me two copies of GLEANINGS, and one copy to Jno. C. Buckland, Esq. Waikonaike, Otago, New Zealand.

Your ideas and work about bees are too elaborate for this colony; they are left out all winter, and generally have to look after themselves all the year round. JOHN H. EVERY.
Dunnedin, Otago, New Zealand. June 1st, 1878.

[So, you see, GLEANINGS has got away off there.]

The queen and racks came in good shape. I like your bottle queen cages very much. I think a queen could be kept any length of time in them. Be sure and report how yours are getting along, that you caged in July. AMOS JOHNSON.
Sugar Grove, Pa., Sep. 16th, 1878.

[All of those caged in July are sold, except 3 or 4 hybrids; these are all right yet. Fresh bees have been given them, once or twice. One that stood near my type writer was chilled during a cool night, but the rest were kept in the house apiary, the even temperature of which keeps them perfectly safe.

QUEENS THAT WON'T LAY.

A friend of mine had two queens, reared in full colonies, which never layed either drone or worker eggs. One being small, he removed her, and gave the bees brood to rear another queen. Thinking it might be the fault of the bees, he sent her to me to introduce into a nucleus, and try her among other bees. I introduced her, and she has been reigning supreme about 12 days; I have made two examinations, and nary egg has she layed. She is an Italian queen, large size, fully developed, with perfect wings, and is in every respect equal to a laying queen in a large colony.

Both the above queens were reared in June, by swarms that had swarmed naturally. Did you ever hear of such queens before? S. DILLMAN.

[Several such have been reported, and I have owned one, fine, large queen that would not lay.]

SWEATING HONEY—A LIVE DRONE TRAP.

I have more trouble with my honey, on account of its leaking and running out, than ever before. Sections that have been off 6 or 7 weeks leak very much; what is the cause? taking off too soon? or thin cappings? It is oozing out now. I have not taken any off since July 15, until the other day, I took 20 sections, and it is running the same as the other, and I know that it is white clover honey made in July.

The honey season this fall was short and light. I took 48 sections 4¼ by 4¼ that weighed 60lbs. strong; they were well finished, but bulged.

I had one chicken, ⅓ grown, that caught and ate more drones than is reasonable to tell; it stood in front of the hives, and took them on the wing and off from the front of the hive, until it was satisfied. JOHN A. JARRET.
West Point, Iowa, Sep. 2, 1878.

[I fear your honey is kept in a damp place; I would give it to a swarm of bees to clean off, and fix up. You will need to feed them heavily first, or they will go to uncapping it. It is possible there is a kind of honey that absorbs moisture from the atmosphere. Try keeping it in an upper room, protected from frost. Your chicken is certainly ahead of drone traps.]

The last lot of smokers came to hand all right, and were all engaged before I got them from the exp. office. Thanks for sending more than ordered. I will give you a report of what my bees have done for me, this summer.

My outlay is as follows:

Four swarms in spring, @ $10.00	$40 00
Queens from you	4 50
Imported queen from Blood	5 50
Total outlay	$49 50

My credit is as follows:

To increase of 10 swarms	$100 00
350 lbs. box honey @ 12½c	45 75
Queens sold	11 00
Total credit	$154 75

So you can see my profit is $105.25 from 4 stands of bees, and they are gathering honey very fast yet. I think my honey will exceed 400lbs., but I have made a safe calculation; I count my bees at $10. a stand, because they are all Italians, and in the spring, they were not; they are worth that clear of the hives. I took some of my honey to market the other day, and they thought it the nicest honey they had ever seen in their town. JAMES PARSHALL.
Union Valley, Mo., Sept. 9th, 1878.

DEPOSITORY OF
Blasted Hopes,

Or Letters from Those Who Have Made Bee Culture a Failure.

PLEASE stop GLEANINGS. My time is not out till Mar., '79, but you can send me 50c. I will only keep a few stocks of bees for farm use. I can make more money on the farm.
Vermont, Ills., Sep. 18th, '78. HARDIN HAINES.

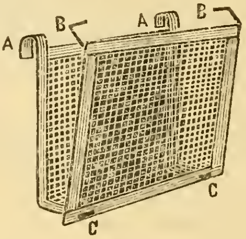
EXTRACTING FROM BROKEN PIECES OF COMB OR FROM SECTION BOXES.

THE extractor that you sent me is just O. P. Q. It works right up to the point. I cannot wish for any better, but would like to know if you haven't some other attachment, so that we can extract from small pieces of comb. If so, please answer through GLEANINGS, or say how it can be done. GEO. CASTELLO.

Saginaw City, Mich., Aug. 19, 1878.

As we always use the L. extractor, we have extracted from pieces of comb, by setting them up on the wire cloth at the bottom. The smaller, shallow extractors, for Gallup, Adair, and American frames, have no such attachment; therefore some arrangement is really needed for the purpose. At the same time, it would be very handy for the tall extractors, when any mishap occurs to break a comb down, or when we wish to extract from heavy pieces of comb, in warm weather. Several devices have been described in the journals, but none of them suit me so well as the one figured below, which was sent me by a friend in the South, whose name I have been so unfortunate as to lose. If he will send us his name again, I will give him proper credit, and $5.00 for his invention.

He uses it for extracting from section boxes also, but I think I should prefer to do this in the broad frames that hold them, thus doing a full set of 8 at one time. With this machine, only one could be extracted at once.



EXTRACTOR FOR PIECES OF COMB.

At C are a pair of hinges, that the machine may be opened, the more readily to receive a heavy, soft comb. The wires, B, are of one piece, and are also made to turn that they may be hooked into A, when the comb is properly in place. The hooks, A, are to hook over the top bar of the inside of the revolving frame of the extractor. If our friend chooses to let me manufacture them, the price will be 25c.; if wanted by mail, add 10c for postage.

* * *

WHOSE INVENTION IS IT ?

I CONFESS, I do not know *just* what *is* right and proper in these matters, and I will submit the cases o you all. In the June No. of the *A. B. J.*, Mr. Winder accuses me of copying and appropriating his curved point honey knife, and wax extractor. Mr. Quinby made and advertised the first curved point honey knife I ever saw; and Mr. Winder, at least, advertised none, until some time after this. While Mr. Q. was alive, I never thought of supplying them. If I am correct, the first I ever made, was to fill an order for Mr. L. C. Root. In all my price lists, I state very plainly that I prefer my original straight bladed knife. The first wax extractor I ever saw, was purchased of Gray and Winder, and their advertisement states (see *A. B. J.*, July, 1871) that the machine was imported by Mr. Gray. If I am correct, it was a German invention. The machine I bought cost me $8.00. I wrote, at once, that they should be made cheaper. As the parties refused to do this, I made a similar one to be used on a common milk pan, at an expense of $3.00. I think Mr. Winder will agree to this. I did copy, at least, in part, the implement I bought of Messrs. Gray and Winder, but as they did not claim to be inventors, it looks to me as if I was excusable, especially as it was for the purpose of doing a public good. Since it is very likely that I take a selfish view of the matter as is natural, I will pay the above firm $25.00 for the copying I did, providing I can use the money to pay the debt the said firm justly and honestly owe Mr. Parker. This will satisfy all parties, and, I hope end all complaints.

A friend writes as follows:

I think the idea of friend Slack, in regard to transferring larvæ to queen cells in Italianizing, deserves a place in the A B C. What say you? I am much interested in that work, and hope to see it as complete as possible. L. S. JONES.

I agree with you, but friend Slack did not originate the idea; he got it from a friend in the South, and this friend found it given in an old No. of GLEANINGS, by J. L. Davis, of Delhi, Mich. For a year or two, we supposed friend Davis was the original inventor, and called it Davis' transposition process; but a subscriber, in California, has recently furnished pretty good evidence that he and his brother made the plan work several years before friend Davis did. Who is the inventor? and who deserves the thanks? Many of these things belong so nearly to a great many of you, that I think we had better give God the thanks; and rejoice that we have helped even a little. I was going to wind up with something about patents, but I think I won't, even if friend Shuck has taken my simplicity feeder and put some sticks and wire cloth on it and had it patented. It is a very pretty little feeder, anyway, and maybe he thinks he had as much right to my feeder as I had to friend Winder's wax extractor. I shan't quarrel any more to-day, or scold either; see if I do.

P. S.—Transferring of larvae will appear in A B C part third, which will be published next month on the new press.

New Quinby Smokers!

The Smoker I am offering the present season, is entirely new in many respects, and is pronounced the best in market. In quality of material and manner of construction, it is as durable as can be made. It works as perfectly in every way, as any smoker now in use.

See what bee-keepers say of it.

"I have thoroughly tested the smoker. It works like a *charm*. Everything about it is perfect. They are made in a thorough and workmanlike manner. I consider it the best smoker in use."

Wenham, Mass., July 10, 1878. H. ALLEY.

"After selling a large number of your smokers we are gratified to know that they give general satisfaction. We keep all the prominent styles in stock, and whenever a visitor buys one he always selects the New Quinby in preference to any other."

Canajoharie, N. Y., July 17, 1878. J. H. NELLIS.

Sent on receipt of price.

2½ inch tube by mail	$1 75
2 " " "	1 50

By express 25 cents less.

Send for circular of General Supplies to

5-4 L. C. ROOT, Mohawk, N. Y.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	" " waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for Gleanings	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
3	Cages for queens, wood and wire cloth, provisioned. See price list	10
30	" " " per doz	1 00
20	Candy for bees, can be fed at any season, per lb.	15
0	Cards, queen registering, per doz	06
0	" " " per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	" " without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	" " top only, per 100	1 00
15	" " bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $6 50 to 10 00	
	" inside and gearing, including honey-gate	5 00
	" Hoops to go around the top	50
	" " per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	" The same, large size, double above prices	
2	" 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 25
0	Gleanings, Vol's I and II, each	75
0	" Vol's IV and V, each	1 00
0	" Vol. III, second-hand	2 00
0	" first five neatly bound in one	5 00
0	" " " unbound	4 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	" " ½ doz	5 25
	" " ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	50
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	" " Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0 0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester	8 50
0	Queens, 25c to $6 00. See price list	
1	Rabbets, Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
10	Saw Set for Circular Saws	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb.	25
18	" Catnip, good seed, per oz. 20c; per lb.	2 00
0	" Chinese Mustard, per oz	15
18	" Mellilot, or Sweet Clover, per lb	60
18	" White Dutch Clover, per lb	35
	" Motherwort, per oz. 20c; per lb	2 00
18	" Mignonette, per lb. (25c per oz)	1 75
	" Simpson Honey Plant, per package	05
	" " " " per oz	50
18	" Silver Hull Buckwheat, per lb	10
	" " " " peck, by Express	75
	" Common " per peck	50
18	" Summer Rape. Sow in June and " July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
1	Slate tablets to hang on hives	01
	Smoker, Quinby's (to Canada 15c extra) 1 50 &	1 75
5	" Doolittle's, to be held in the mouth	25
	" Bingham's $1 00; 1 60;	2 00
25	" Our own, see illustration in price " list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of vail, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	10
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	05

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Names of Premium Articles. *Any of them sent post-paid on rec'pt of price.*	*Prices of Premiums*	*Number of Subscribers required at* c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	25	5	2
3—*Photograph of House Apiary*	.25	5	
4—*"That Present." Novice and Blue Eyes*	25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		4
9—*Best quality Emerson's Binder for* GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1,00	9	4
11—*Photo Medley, Bee-Keepers of America*	1,00	9	6
12—*First and second Vol. of* GLEANINGS	1,50	10	
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10

DAVENPORT GLUCOSE MANUFACTURING CO.

MANUFACTURERS OF SUPERIOR DOUBLE REFINED GRAPE AND MALT SUGAR, CRYSTAL GLUCOSE SYRUP.

Superior Double Refined Grape Sugar for feeding bees, at 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb. by the barrel. Samples of the Grape Sugar will be sent prepaid, by Express, on receipt of 10 cents.
11-1y LOUIS P. BEST, Sup't, Davenport, Iowa.

We will furnish the above delivered on the cars here in Medina, at ½c in advance of the above prices. Or we will have it shipped from the factory, at factory prices. Any amount less than 50 lbs., will be 5c per lb. Instructions for feeding it to bees sent free. Sample by mail, 10 cents.
A. I. ROOT, Medina, Ohio.

Square Honey Jars.

One pound square Honey Jars, per gross......	$5 00
Two " " " " " "	7 00

Corks, Caps, Labels, Langstroth's Bee Hives, Muth's All Metal Honey Extractors, Alsike Clover Seed, &c., at reasonable rates. For further particulars apply to CHAS. F. MUTH, Cincinnati, O.
1-3-5-7-9-11

COMB FOUNDATION,

45 TO 55 T. PER POUND,

According to quantity bought at one time. For further particulars, see our Illustrated Catalogue, mailed on application. A. I. ROOT, Medina, Ohio.

BEES FOR SALE.

50 Colonies	Italians in Langstroth Hives, -	$6 00
50 "	Hybrids " " -	5 00
100 "	Blacks in Triangular " -	3 00

Will deliver in good condition on any Miss. River Packet. The stocks are worth the price for the honey they contain. GEO. B. PETERS,
11-2d Council Bend, Arkansas, Oct. 11, 1878.

Early Queens.

J. P. H. BROWN, Augusta, Georgia, Importer and breeder of Italian queens, and dealer in Bee-Keeper's supplies. Queens bred a month earlier than in the North. Low express rates. Packages of five or more queens sent free of express charges to any part of the United States except California and Oregon. 11tfd

WANTED, at this office, Vol. V of GLEANINGS. Will pay $1.50 for it. A. I. ROOT.

ANY person desiring to furnish bees on shares may address REV. G. H. CHILD,
Adamville, R. I.

Glass for Bee-keepers.

Glass, 8x18, for large shipping cases, 7c. per sheet; or $3.00 per box, in boxes of 50 sheets.

Glass, 8x13½, for small shipping cases, 5c. per single sheet; or $3.00 per box, in boxes of 66 sheets.

Glass, cut to any of the sizes used by Beekeepers, for $3.00 per box.

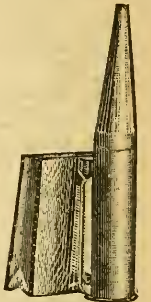
At this price, *each box must contain but one size.* Glass in full boxes, shipped from Pittsburgh.
A. I. ROOT, Medina, O.

GEORGE GRIMM,

JEFFERSON, WISCONSIN,

Hereby respectfully gives notice to the public, that his Circular and Price List of Italian Bees, for the year 1878-9 is ready; and that he is selling bees at his usual *low* prices. 10-3d.

SMOKE AND SMOKERS.



I am overwhelmed with letters asking "which size of smoker is the best?"

Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries*, and for *coarse fuel* they are the *best.*

The Standard is what its name implies, and constitutes the *bulk* of *sales* so far.

The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants; it is larger, however, than the improved Quinby.

The first "Direct Draft" smoker *ever sold* has been used one year, and sold for one dollar, as the gentleman wanted a *large* size.

It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price.*"

They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco*, or *sulphur.*

Directions sent with every smoker.

These smokers are a *necessity in modern bee culture,* and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per Express..	$1 75	Mail.... $2 00
Standard " ...	1 50	" 1 60
Small, " ..	90	" 1 00

Patented January, 1878. Manufactured *only* by the inventor, T. F. BINGHAM,
4tf Abronia, Allegan Co., Mich.

Comb Foundation MachineS

$35.00 TO $100.00.

SAMPLES OF FOUNDATION WITH OUR ONE POUND SECTION BOX BY MAIL FOR FIVE CENTS.

For illustrations see our Illustrated Catalogue of Apiarian Implements and Supplies, mailed on application. A. I. ROOT, Medina, Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. NOVEMBER 1, 1878. No. 11.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more, 60c. each. Single Number,* **10c.**

MY EXPERIENCE. NO. 11.

A HOME-MADE FOOT-POWER BUZZ SAW.

I AM sitting in my work-shop where it is quiet, and am using my buzz saw table for a writing desk. I made the most of said buzz saw myself, and I am going to devote the whole of this article to a description of it, with the hope that it may help some one else who has a "notion to make" a buzz saw.

I first made the large band wheel. It is composed of felloes, 4 inches wide, sawed from two inch oak plank, and pinned together. The wheel is 8 inches thick, across the face, and 40 inches in diameter. Two pieces of oak plank, 8 inches wide and 2 inches thick, are halved together for spokes. The outside ends of the spokes taper down to 4 inches in width, and then enter mortises cut in the inside of the wheel. Exactly in the centre of the wheel, where the spokes cross, a square 3 inch mortise is cut for the shaft. Inside of the wheel, opposite the treadle cranks, are nailed pieces of old wagon tire; these counterbalance the weight of the treadle. The shaft is made from a 3x3 inch oak scantling, and extends the whole length of the buzz saw frame. I spiked 4 wedge shaped pieces of plank upon the shaft, one upon each side, with the wide ends all one way. The wide ends of these pieces form a sort of collar, or shoulder, against which the spokes of the large wheel are firmly held by means of a key through the shaft. I can take the key out, shove the wheel along upon the shaft, and run a belt from a little steam engine (if I am ever rich enough to own one) to the pulley upon the saw shaft. If I have a short job of sawing, I can use foot-power; if the job is a long one—why, turn on steam.

Around each end of the shaft is an iron band; *in* each end of the shaft is driven a gudgeon made from ¾ inch round iron; and upon the end of each gudgeon is a crank, 2½ inches long. The treadle, or rather the piece upon which my foot presses, comes up *behind* me, and from each end of this piece, a bar of wood extends to the back part of the "machine," where it is fastened with a bolt, upon which it turns. These bars pass directly under the cranks which are upon the ends of the shaft, and are connected with them by pitmans. The pitmans are about 18 inches in length.

I can tread upon any part of the treadle, and it will go down steady and firm; the two cranks prevent it from being "springy."

The top of the frame-work is simply a 2-inch oak plank, one foot wide, and six and one-half feet long. At each end of this, "uprights," one foot wide, and forty-two inches long, are mortised and bolted. In the center of each "upright," a hole is cut for the shaft to pass through, and a piece of hard wood is bolted upon the outside of each "upright," for the gudgeons to run in. To the bottom of the uprights, are pinned pieces of plank, 4 inches wide, and 3½ ft. long, and it is to the back end of these pieces that the back end of the treadle bars are fastened.

This frame, if such it can be called, is firmly braced each way.

Upon the top of this table, the buzz-saw table proper is fastened, with bolts, in such a manner that it can be removed in a few moments, and a turning lathe put in its place and run by the same foot-power. I should not have made the frame so long, if I had not had this end in view.

The upper part of the saw table is fastened at one side, with hinges, and is raised or lowered with a screw. One of the boards composing the table—one that is near the saw—is left loose, so that it can be slid backwards and forwards, the edges being beveled to keep it securely in its place.

Near the end of the board that is next the operator is fastened, at right angles, another strip of board, 3 inches wide, and 2½ feet long. The work is placed in front of this strip, and then pushed up against the saw, the strip holding it "squarely" to the saw.

That board in the table that comes next to the sliding board is fastened with bolts, so that it can be moved up as it wears away. I also have a gauge that works parallel to the saw; it can be put close up to the saw, moved 2 feet away, or taken off altogether. Then there is a block of wood that can be fastened to the "sliding board" above mentioned, and by leaning boards against this, and letting their lower edges come against the gauge that runs parallel with the saw, I can bevel their edges. This block is fastened with a set screw, and can be moved, so as to make bevels with different angles.

In the center of the table, where the saw comes up through, is a small piece that can be removed, and a piece with a larger slot cut in it can be put in its place; the piece with the large slot is used when I wish to set the saw wabbling.

By looking around at the machine shops, I found a small, second-hand mandrel. It was all complete, with collars, and a 3-inch iron pulley, and ran in set screws that fastened with bolts. They fitted it up for the 6-inch Barnes saws, and let me have it for $2.00.

To get enough motion, I had to use a large band wheel, and this made the table too high to work with ease; to remedy this, I made a platform, 9 inches high, to stand upon, and "rigged" my treadle accordingly.

I bought Mrs. H. a new bed-tick, and she very generously gave me a six-inch strip off one side the cloth; this, I folded twice, stitched it upon the sewing machine, and it made a nice belt, 3 inches wide, and having a thickness of 4 layers of cloth.

The material cost as follows: lumber, $4.75; bolts and screws, $2.05; blacksmithing, $1.45; saws, $3,00; mandrel, $2.00; belt, 32c. Total, $13.57.

So much of the work was done at odd spells, that it would be impossible to tell exactly how much time was occupied in its construction, but I do not think it would be far from three weeks.

I am well pleased with my saw; I have sawed out 1,000 fence pickets, cut up ash and walnut lumber for two bureaus, some stuff for rustic picture frames, made a lot of bee-hives, &c.

I would not advise any one to attempt to make a buzz-saw, unless they have more time than money, and a *love* for such work; for they will have to overcome many difficulties, before they have their saw "buzzing" through inch lumber, at the rate of "eight feet per minute." W. Z. HUTCHINSON.

Rogersville, Mich.

Many of your ideas are excellent, my friend, and the ingenuity you have exhibited in making cheap appliances answer, without investing in expensive fixtures, is extremely praiseworthy. A feeling of praiseworthy independence that is worth everything almost is engendered by being able to make what you want, yourself, out of the materials that lie about you, and cost you comparatively nothing.

HOW MUCH CAN WE HELP THE BEES IN REARING QUEENS?

DEAR NOVICE: Having recovered partially from an attack of my old malady, which for nearly two years has prevented me from taking any interest in bee matters, I venture to send you a few thoughts on rearing queens.

Huber, in 1792, tells us how Burnens transferred queen-larvæ, preparing to spin their cocoons, into glass queen cells, where he could witness the whole operation. Eight years ago, Mr. R. Bickford gave me some glass queen cells open at the top and base, by inserting which into queen cells just begun, I was able to repeat the experiment of Huber.

In the third edition of my work on the *Hive and Honey Bee*, I gave Kleine's method of availing himself of Dzierzon's suggestion; that as Huber, by introducing some royal jelly into cells containing worker brood, obtained queens, so it may be possible to induce bees to construct royal cells where the apiarian prefers to have them, by inserting a small portion of royal jelly in cells containing worker larvæ.

The late Mr. Richard Colvin showed me a method of inducing bees to build queen cells in convenient places, by enlarging with a round stick any cell holding a suitable larva. This plan sometimes succeeded *when no jelly was given*, as he could easily spread out the mouth of the cell, so as to make it somewhat resemble the appearance of a cell which the bees have begun to enlarge for the rearing of a queen. These devices, however curious, were of little practical importance.

The plan which you give in GLEANINGS for September seems more promising, as it proposes to save to the bees a large part of the cost in building queen cells. Trial alone can show whether they will accept these artificial cells. I hope they will, but I have often found that they would not do just the very things that I most confidently expected of them, and *vice versa*. They hold the veto power over all our devices, and can neither be flattered, bribed, or intimidated, to forego its legitimate exercise, nor have they the slightest regard for even the seal of the U. S. patent office!

Now I, too, have taken a turn around that famous "stairway," but only in imagination, and therefore I cannot warrant the results. I have found that the transferring of larvæ to queen cells is a delicate manipulation, and whether from rough handling or because the bees do not like to be dictated to, often fails. Suppose that we could persuade the bees to undertake the job, themselves! It is well known that, although they seldom transfer eggs from the cells in which the queen has placed them to other cells, as they know that she never puts them where they ought not to remain, yet, not unfrequently, when given brood to rear queens, they will remove the larvæ to other cells.

Now, would it not be nice, as you often say, if, when we give them rows of queen cells "stuck on a stick," we could give them a tiny slice of comb with eggs and very small larvæ, and thus devolve upon them the pleasing duty of putting in their new cradles the future mothers of the race? Rarely delicate would be their handling of these foster nurselings, and perhaps much better than ours would their judgment be as to just the proper age at which to remove them.

But for fear that, after all, either from *bee-like* self will or for want of some Belle-Newton, with deep penetration, to show them how to avail themselves of our admirable provisions, they should prefer to rear them on the comb we give them, I would suggest that the brood comb to be given them, after being reduced to say one-half the depth of a normal cell, should be so placed that while they have access to its contents, they should have no room to build upon it any royal cells.

Now, lest some of your readers may think that I am slyly making fun of our friend Novice, or else that I am hopelessly visionary in the conceits which I have superadded to his common sense device, I give the following, which I wrote for the *American Bee Journal*, July, 1872, p. 3:

EXTRAORDINARY INSTANCE OF SAGACITY IN BEES.

The facts which we are about to relate, are the most interesting of all the special bee wonders which have come under our own observation. We should hardly venture to give them to the readers of the Journal, if we did not feel it to be a sacred duty for every observer to give to the world any such facts, however seemingly incredible, confident that a *fact* ("*factum*") in nature is a thing *done* by the All-Wise Creator, and that in due time its verity will be made apparent to all.

In the year 1864, we conceived the idea that a very strong colony, queenless and without brood from which to supply their loss, might perhaps, by having only a few worker eggs or larvæ given them, be induced to rear queens of extra size and beauty. To such a stock, we gave a piece of comb about half an inch wide and three inches long, containing suitable brood. Examining it a few days after, we found a dozen or more queen cells begun, and with the head of a pin, removed the queen larvæ from all of them but four, and left none in any of the other cells. When those cells were all capped, we thought it would be economy to set the strong stock to work upon a second lot.

As we had put the first piece of comb into a place cut out for it between one of the uprights of the frame and the comb, we put the second into a similar place on the other side of the same comb. Lifting out the combs a few days after to note progress, we were surprised to find not a single royal cell begun on this last inserted piece, and not a single larvæ in any of its cells. Looking at the piece first put in, to our amazement, we found all the royal cells from which the tenants had been extracted, occupied afresh! and the cells much more advanced than at the time we destroyed their first occupants. These bees were evidently determined not to lose the labor they had bestowed on the first set of cells, and had removed to them the larvæ from the worker cells on the opposite side!

After the lapse of 14 years, I still feel something of the enthusiastic delight which thrilled me, as I showed these wonders to my family, and recorded them in the journal which I had kept from 1852.

L. L. LANGSTROTH.

Oxford, Ohio.

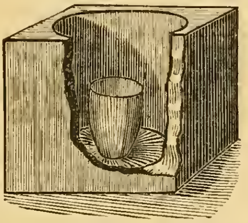
We all most heartily rejoice, friend L., to be able to get something from your pen once more, and if it be a possible thing, would be glad to have a sample of those glass queen cells, in order to have enough made, so that our readers may repeat this wonderful experiment. It has been stated that the queen, when spinning her cocoon, is incessantly in motion; can you tell us whether this is so or not?

And so the transposition process, like many other inventions, is an old thing freshly revived, or invented over again. Do we really know so much more than our great grandfathers, after all? I was well aware of the plan given in your book for inducing any cell to be made into a queen cell, but the practical application of making a single choice queen furnish larvæ for all the cells built, in any kind of a hive, seems to have been only recently recognized.

Your ideas are most opportune, friend L., and although we have not as yet succeeded with the rows of queen cells on the comb guide, we have done enough to feel considerably encouraged. Our wonderfully ingenious friend, Scovell, of Columbus, Kansas, has just sent us a beautiful artificial queen cell, in the bottom of a block, as shown in the cut. See what he says about it.

By this mail, I send you a small box containing artificial queen cells. I think this plan away ahead of the one described in Oct. No. of GLEANINGS, for rearing queens in artificial cells. After the larvæ is placed in the cells, the boxes are to be set over the openings between the frames.

The advantages are these: you can use few or many on a hive, as you like; they can be picked up and examined in a moment; if any larva has been destroyed, another can be inserted and the box returned to its place on the hive; they can be removed from the hive with perfect safety as soon as sealed, and stacked up in the lamp nursery, or if the apiarist is so unlucky as not to own a lamp nursery, they can be used at once in queenless hives, without any cutting or fixing; if a cell is taken from the hive with all the bees that are in the box, it can be introduced to a hive having a fertile worker, without having the cell destroyed; when a queen has hatched, the cell can be used over again without any trouble.



SCOVELL'S ARTIFICIAL QUEEN CELL.

During the fore part of the season, I had all my cells built along the under side of the top bars of frames, but, instead of artificial cells, I cut small bits of comb containing larvæ and stuck them along the bar. I would often get as high as 15 perfect cells on one bar. The only objection to the plan is that the bees are sure to build more or less comb along the bar, sometimes covering the cells entirely up. The comb is always drone, and has to be cut away, and is useless for anything except the wax it contains.

During the latter part of the season, I introduced over 100 cells in these boxes. If artificial cells can be made to work, it seems to me that this will be a much nicer way to use them than to have them stuck to the comb guide of frames. H. SCOVELL.

Columbus, Kansas.

All right, friend S.; now show us your skill in inducing the bees to accept them.

ASILUS MISSOURIENSIS.

TRIED AND FOUND GUILTY.

IN GLEANINGS for October, you seem to think that I have "exaggerated the danger" from the bee-killer (Asilus Missouriensis). In the latter part of June, I wrote you that my bees were dying off in large numbers; you said it was probably the old bees, and so I found it. I then began to feed regularly, and continued to do so until the last of July. By that time, my hives were crowded with young bees, and the combs were full of brood.

Buckwheat bloomed the last week in July. The fields swarmed with bees, and so they did with the Asilus; I saw the Asilus darting from flower to flower after the bees, and the ground under the buckwheat gave full proof of their success in bee-killing, by the large number that lay there dead. The bee-killers were never so numerous before, and I hope will never be so again. W. J. WILLARD.

Jonesboro, Ill., Oct. 6, 1878.

MOVING BEES SHORT DISTANCES.

AND WHAT CAME OF IT.

LAST winter, I bought a swarm of bees, brought them home, and set them on a box in the back yard, pretty near the house. When the bees began to fly, I thought they were too near the house; so I moved them to the back end of the yard. The bees came buzzing around the old stand, but I thought nothing of it.

Pretty soon, there came a cold snap, and I put them into the barn for protection. The first warm day, I noticed the bees humming around the place from which I had last moved them. After a few days, I moved them back to the old stand; then I saw them humming around in the barn.

Well, by this time, I had them well fitted for robbers, and the robbers came, went at them, and soon cleaned them out; and that cleaned me out of bees. Well, I have got a little "sand," so I bought another swarm, and another, until I had 9 swarms, and had paid out $38.50. Then I sent for GLEANINGS, and began to study it and my bees together, and visited and talked with others who had experience in bee-keeping, until I got to be quite a bee-man.

I have transferred 5 swarms from box hives to movable frame hives, and have made a success of it.

I think I have made a pretty good thing out of my bees. Here are the figures:

Bees sold, - - - - - -	$ 60 00
Honey sold, - - - - - -	36 80
16 swarms on hand at $10 per swarm,	160 00
Total receipts,	256 80
Bees bought,	38 50
Net gain,	218 30

The honey which I have on hand, with what I have given away, will pay for the fdn. which I have used. C. E. WALDO.

Grand Ledge, Mich., Oct. 4, 1878.

ANOTHER A B C "CHILD."

AND HOW HE GREW.

I FIRST commenced in the bee business, about July 15, '78, by hiving a wild swarm which lit on my apple trees. I knew nothing of bees, and looked all over the papers for some advertisement by which I could get something pertaining to bees. I saw yours of the A B C, sent 25c., and got a book.

I took the bee fever at once. I had seen honey sold here for 17 years, for 25 and 30c. per lb. I had the best place on earth for bee keeping, and had lost $200 every year by not raising my own honey.

Well, I subscribed for your GLEANINGS, and pitched right into work. I made me a hunting box, and have found and cut 13 trees and successfully transferred the bees from 9 of them to hives. I had bad luck in falling the other 4 trees and killed the bees.

I immediately sent for 25 Langstroth hives, and lo! in one month, I was an old bee-keeper, with more experience than I presume some have in 5 years, for I worked day and night at them, fixed up my yard, advertised to transfer from old hives and furnish new hives, and warrant them.

There are a great many bees kept here, but, strange to say, I never took any notice of them before. I sent at once for Cook's *Manual of the Apiary*, got my hives and started out. In Aug. and Sept., I transferred 39 swarms, all to L. hives, and got $1.00 each for them, and furnished hives at $2.00 each to $2.25 and $2.50 for two-story, unpainted hives. I have now on my books, engaged to transfer in May, 97 swarms, for my neighbors.

I have used fdn. comb in most places, to help build up faster, where they would buy it of me. I have a wire screen cap to wear on my head and over my face, and wear buckskin gloves on my hands.

I upset the old hive, place the new one on the spot, give a few puffs of smoke, and rap until I see the queen run out; then commence by cutting the nails in the old hive with a thin cold chisel, and with a long bladed knife, cut the combs loose from the board and take it off, then lay the large slabs of honey down and cut them to fit the frames.

I use wire clamps hooked at both ends to hold the combs in place, and set them in the hives. On the third day, I open and remove the wires; when I find everything fixed up, I examine to see if any eggs have been laid by the queen, and generally look her up.

I have had extra good luck, and never lost one swarm, neither have I had any robbing; and I did not protect them or shut them up, though I did all the work in the yard near other bees.

I usually take out from 25 to 30 lbs. of honey. I have one swarm taken from a tree, Oct. 7, '78, which I think are Italians, though I never saw one. I have sent a sample to you to inform me. This swarm to-day (Oct. 9) has two sheets of fdn. worked out since transferring, and eggs deposited now at this writing, 5 p. m. I would not sell the swarm for $20.

In the spring, I mean to Italianize all my stocks, and Italianize for as many of my neighbors as I can induce to have it done, and make myself head-quarters for bee supplies, &c., of this place. The country abounds in wild flowers, and even now bees are making honey from golden rod.

I have been transferring up to the 7th of Oct. right along, but put in most of the honey.

In hunting bees, I use a preparation of anise, alcohol, honey, and water, and with my thumb, as I pass along, I wet the leaves and sticks for from 10 to 20 rods; then set my box in the center and wait for bees. I have had bees come 2 miles against the wind, and lined them out and found their trees. I do not look for bees on flowers at all, since frost, and since I have had this scent.

There has been a large yield of honey here, this year. I have taken 15 lbs. off from the under side of hives, sitting high up from the ground. If any beginner wishes any information from me from what I have learned in so short a time, by experience, I will gladly write him on application.

In a year from now, I shall probably have 50 swarms, all Italians, with all the modern improvements.

I have sent for Italian queens this fall, but could get none as their stocks were exhausted. If you have any yet, and it is not too late, send me one of the best. I will remit at once. Keep me posted in improvements, and I shall buy as far as I need. Funds shall not be wanting; if I see a thing is an improvement, I will adopt it.

If you wish to hear from me again, say so.

E. A. MORGAN.

Arcadia, Wis., Oct. 9, 1878.

To be sure I want to hear from you again, my friend, and although you have had but about 3 month's experience, I have sent you one of our best $3.00 queens for your valuable and practical article. The secret of your success has been your intense earnestness, industry, and enthusiasm, and I only hope it may hold out; that you may continue to work day and night, and not turn off on some other track, as those of your temperament are disposed to do (you see, I know, for I am one of that kind), and finally fetch up in Blasted Hopes. The bees you send are very fair hybrids. Your idea of scattering the scent for bee-hunting is excellent. I have never tried it, but as soon as you made the suggestion, I knew that it would be a splendid arrangement, from having seen bees follow along where honey had been scattered. Go on; work with your bees all winter, if you choose; but look out, study your books, and be careful.

QUEENS MATING TWICE.

AN UNWELCOME DISCOVERY.

I MUST confess that I condemned those dollar queens a little too soon; they have changed wonderfully in color in a few weeks. One began laying in 2 or 3 days after being set free, and produced bright yellow workers; the other, I rather doubt if she was impregnated, as she did not lay until about the 25th or 26th day after she was liberated, and in examining the colony, the 20th day after she was liberated, I thought she looked as if she had just met the drone. She had a small thread-like substance protruding from her abdomen, unlike anything I ever saw before or since; however, she has since produced fine yellow bees.

I can fully recommend the bottle queen cages. I caged a black queen in one, on Sept. 9, and she is just as lively now, Oct. 9, as when I put her in. I have supplied the bottle with water once, and have put in bees as fast as the old ones died.

I have now 14 colonies; 9 full bloods, 1 hybrid, and 4 blacks. They yielded well this season, and if I had had 1,000 lbs. more in pound section boxes, I could easily have sold it all here at home. The price held at 20c. the entire season; grocers retail at 25c.

I use the Langstroth hives, one story, with a high cap. Would it not be just as well to pack the lower story in chaff, by making an outer shell and filling in with chaff, and putting a cushion on top for wintering, as a regular chaff hive?

How can I fasten section boxes together to be put on top of the frames? How can you tell whether a queen is impregnated or not, late in the fall, when they have stopped rearing brood? W. E. YODER.

Lewisburg, Pa., Oct. 9, 1878.

Now I am going to make a confession, if confession it should be called. It is in regard to queens' mating twice. This idea was taken up several years ago, and many testimonies indicated pretty strongly that such is sometimes the case, at least while the queen is only a few days old. A few have advanced the idea that old queens sometimes leave the hive to meet the drones, but their testimony, when the matter was sifted, seemed to be based on observations very carelessly made. Well, you know I have introduced a great many imported queens. Most of them would lay in 3 or 4 days; some would wait nearly, or quite, a week. Last fall, one waited so long before laying that I began to fear I should not see any of her progeny before spring. One day, in looking over the hive, I found a thread like appendage attached to her, that looked very much like the shriveled up appendage indicative of her having recently mated. Said I,

"Old lady, if I did not know positively that you were imported from Italy, I should say you had met a drone about yesterday."

Did I sell such a queen without mentioning this? To be sure I did, for, as she must have been at least two months old, I thought the thing impossible. Two customers have this summer accused me of sending them imported queens that were not fertilized. I replied rather severely, I fear, that I could not do such a thing, if I would. A few days ago, Will asked me if Tremontani could send an unfertile queen across the ocean, and she be fertilized here. I told him it was impossible. He then said that he saw one of them which, he felt sure, had just met the drone. I assured him he had made a mistake, and the matter was dropped. In selling so many queens, I have had ample chance to get at facts, and although we have never thought of sending out a queen that did not lay, this fall, several have written that the queens have flown out after being introduced; but it never occurred to me, until I read the above letter, that they might require a second fertilization after being a long time deprived of an opportunity of laying eggs in the usual way. A queen, after a long voyage, looks very much like a virgin queen. Is it possible that she is reduced to the condition of a virgin queen? This phase is, I know, a damaging one to the importing business, and there may be those who will say it is only an ingenious excuse for sending out virgin queens. I can only give you the simple facts; if it hurts the queen business, it will have to be hurt. I have sent virgin queens several times where they were ordered, but I have never yet heard of one's being introduced. All the queens sent out from our apiary shall be, as they always have been, laying queens. I do not believe, for a minute, that Tremontani ever sent a virgin queen across the ocean; neither do I believe those of whom I have purchased queens ever sent a virgin queen. If queens really do sometimes go out after they are purchased, I do not know how I can help it, nor shall I undertake to be responsible for such unwarrantable behavior on their part. Who can tell us more about it?

You can make a chaff hive as you suggest, but I do not think you will like it. The 3 box case is for setting on top of frames. You can tell that a queen is fertilized in the fall, only by feeding the colony, until she begins to lay.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

DEAR NOVICE:—In April, '77, I bought one dilapidated swarm of black bees in an odd old hive, and will report for *this season*. I have 13 swarms, all large and heavily provisioned for winter, in lawn chaff hives, with brood chamber 14x14x 9½, and have taken over 900 lbs. of section honey, made from clover, buckwheat and linden, mostly the latter.

One swarm that issued June 13th, yielded 117 lbs. of honey in sections, 4¼x5¼; one which issued June 15th, yielded 123 lbs., and one issued Aug. 15th, yielded 30 lbs. Due first to GLEANINGS, next to attention. Long may you flourish.

My other half fixes your wooden frame with *heavy* tin corners,—well, here is one.—*Too light?* See for yourself. Result—*equally spaced always*, metal edge to metal edge, as we use your rabbets. This obviates the difficulty we found with your metal corners—they being *too* movable—and is much cheaper.

Oh! "Providence" hybridized my bees from woods swarms, until some second swarms all have yellow bands, mostly three. They are beauties, and I handle them like flies; bare-headed, bare-handed, and bare-footed. Yours for the "Smilery."

MRS. JENNIE LEETE.

West Amboy, N. Y., Oct 14th, 1878.

Your metal corner is very ingenious, and certainly accomplishes one result at least, but I do not like frames at fixed distances, nor, if I am correct, do the majority of bee-keepers. Are you sure you would be a fitting candidate for this department, my friend, if you should happen to step on a bee when working among them barefooted.

BEES KILLING THEIR OWN QUEEN, ALSO BORROWING FROM OTHER HIVES.

I AM before you to ask you a few questions concerning bees, or rather their curious ways of doing things. First, why do they sometimes kill their own queens? Don't say honey is scarce, or that they were overpowered by robbers; for I know that neither was the case with mine. I have had 3 or 4 killed this season by being balled to death, one of them being balled about one week. They had gone so far as to build 25 queen cells, some of them being almost ready to seal, before I discovered the matter; they had not quite killed the queen, but were clinging to her like so many leaches.

Why do bees borrow from each other? I noticed a few days ago, while it was raining, 2 hives, Nos. 23 and 29, seeming to be on extra duty, but by close examination, I found them robbing, or rather borrowing, from each other without even a cross look or word between them. This case "cut me down," at first, as to how to stop it. My first move was to carry one of them into a close room for that day; it was set out again at night, but by daylight they were at it again. I once more housed one for that day, and set it out at night, but here they were next morning for an early breakfast. I then closed the hive and carried it off one mile into the midst of the flowery valley, where they can work to their satisfaction.

We have had a good season for swarming, but not as good for honey as last season. Our bees are all very strong; they have filled their hives from the fall flowers, and there is no need of borrowing any more.

When you get your fine house finished and 4,000 more subscribers, I will give you a call.

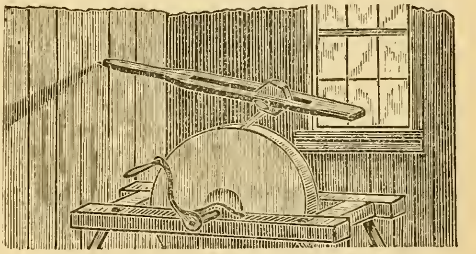
Your everlasting A B C FRIEND.

Lenoirs, Tenn., Oct. 15, 1878.

Before I can guess at the cause of these troubles, my friend, I should like to know more of the circumstances. Are you sure it is not because your hives are too close together? I once had a dozen hives, all alike, standing in a row, in a buckwheat field, and after the yield had partially ceased, they began balling their queens, getting into each other's hives, and behaving much as you describe. Give your bees separate stands; have them at least 6 feet from center to center, not in straight rows, and I think you will do away with at least a part of such troubles. Your course was a very good one for such borrowing must be stopped, or it will ruin an apiary.

GRINDING TOOLS ACCURATELY.

EVERY bee-keeper should have in his shop, not only a good grindstone, but a tool like the one below, that he may do nice true work with it. The man who is armed with sharp tools is head and shoulders above the one who is not, for almost any kind of work.



WOLCOTT'S TOOL GRINDER.

Mr. Kirk, of Waterbury, Conn., wants a cheap and efficient guide for holding plane irons, chisels, &c., while grinding. Here it is. Take a piece of hard wood, 32 inches long, 2¼ inches wide, and ¾ thick; put an iron spur in one end, and taper the piece 10 inches from the end to the spur. Cut a mortise through the center, 15 inches long by ¾ wide, commencing 13 inches from the spur end. Round the corners of one side, to make it easy for the hand.

Now, take a hexagonal piece of wood, 3 inches in diameter, and 1 inch thick; in one side, put a spur to hold chisel handles, cut the under corner of another for plane bitts; make a mortise in another for plough bitts; a ⅝ inch round hole in another for small chisel handles, &c. This hexagonal piece is held in place by a hand-screw, running through the mortise, being movable up and down, and can be turned in any direction. In grinding, never take the spur from the post or wall which holds it, till the work is finished, but turn it up as often as you please, to look at it. No extra hand is required to turn the stone. We grind hatchets and drawing knives on the same principle. No patent. I have used it 37 years.

J. L. WOLCOTT.

Bloomington, Ills., Sept. 17th, 1878.

Thank you, friend W. I am so much pleased with your tool, that I have had an engraving made of it, which, I think, with your description, will make it plain enough to anyone. We send you GLEANINGS one year for the idea.

BEES AT FAIRS AND CIDER MILLS.

"FREE TICKETS."

I AM having some trouble. My bees are located very near the fair ground, and as the weather was hot during the fair, they were on hand and went in without tickets. The party that rented the dining hall got a large case of honey for the tables, and to have it out of the way, it was set just outside of the door. The bees soon got possession and had everything their own way during the day. Next morning, I found the case sitting by my door, with the 40 lbs. of honey it had contained all missing; there was not over 1 lb. in all the sections.

Then they went to the hot candy stand, and made things lively there. The keepers of the stand killed all they could, probably a good swarm in all, and a large percentage were Italians. Poor fellows! We heard it talked around that the nuisance must be removed. Well, if they go, I go too.

Then, too, there is a cider mill not 50 rods away, and, for the last 10 days, they have had possession, and the man gets out of patience, and kills all he can, and thousands get drowned. I don't know what to do, only to let them work it through their own way. I am thinking some of selling off 100 stocks at auction, and starting in a new locality, and getting my hives all of one kind. As they are now, they make a bad show—all kinds and sizes.

I very much hate to have my bees annoy other people, and also to have them destroyed, as they have been lately. I can soon run them up to 100 again.
N. N. SHEPARD.

Cochranton, Pa., Oct. 3, 1878,

I have been through the same experience, my friend. A year ago the bees got to going so, on the candy stands at the fairs, that a man came and demanded pay for the loss of his candy and trade. I offered to cover his candy and goods with pink tarleton, but he said he could not get along that way, and I finally told him he would have to manage as best he could. I was told afterward that some one told him, if he came to me and demanded $50 damages, I would pay it. I tried to tell them how such work came about, but they could not, or would not, understand. This year, as soon as the candy makers began to get ready, I went to them, and asked them as a favor, to keep a paddle, and kill the first bee that came near, before he could by any possibility load up. This candy man, although a stranger, promised to do as I said, and not one dozen bees came on the fair ground, although the weather was dry and warm for the whole 3 days. We had also new complaint from the cider mill this year. The man said the bees could not be stopped out; that inch boards would not hold them. Two hours work, and a bundle of lath made everything pleasant, and the bees gave up and went home. The openings to the mill were curtained (as explained in the A B C) of course.

A QUEER HIVE.

AUTOMATIC SWARMING AGAIN.

ONE of my neighbors, Mr. Carter, on July 7th, had a swarm of black bees go into his house, which is a frame one, sheathed on the inside and sided outside, forming spaces 4x14 inches between the studding. They went through a knot hole in the siding, 18 inches down from the plate. Six weeks after they began to work in the house, he employed me to *transfer* them into a *Simplicity hive*. On tearing off the siding, I found they had filled with comb, brood, and honey, the space in which they worked, for a distance of 3 feet up and down the studding, and out of the spaces on either side of this brood nest, I took 30 lbs. of pure surplus honey. Those side spaces answer to the side boxes in Simplicity hives. From the brood nest I filled 8 racks with young brood and honey. The bees are doing well in the hive, up to this date. I also transferred another swarm for him, that had gone into an old flour barrel, which was standing bottom up in his garden. Both of these were stray swarms. I know of another that went into an old box, which was placed in a cotton wood tree, for the martins. Here on the prairie, bees accept anything as a substitute for hives.
JOHN C. FOWLER.

Ashkum, Ills., Sept. 15th, 1878.

There, my friend, your closing remarks have just pointed out the way. Have your apiary a mile or two from any timber, or at least from any hollow trees, then fix up your hives, one or two up in the trees, if really necessary, although I can scarcely think it will be, and the runaway swarms will be sure to house and hive themselves; If a conveniently furnished hive was always in readiness, I believe many swarms would be saved. If the bees really have an instinctive preference for knot holes, and a secluded entrance, we can easily fix that, without detriment to ourselves either. Two truant swarms have come to our apiary this fall; one of them scattered about among other swarms and the other hung under the eaves of the honey house over night, was then safely hived, and is now doing duty with the rest.

PROPOLIS, WIRE IN THE FDN., PERRINE'S ENTERPRISE, ETC.

I NOTICE that you are using the pronouns "he" and "him" pretty freely when speaking of the worker-bees—see page 331, 2d col. 5th line; see also several lines near the bottom of 2d col., p. 337.

You can prevent propolis' sticking to the fingers if you grease them with lard. When propolis is soft it is sticky work to clean the frames, rabbets, &c.; but you can quickly harden it and make it brittle, by wetting it with cold water.

I used wire in frames to prevent the sagging of fdn., in the same way which you describe, when I was in Shreveport. Perrine suggested the idea to me, and if I mistake not, he told me that some one in York State had secured a patent upon it. Perrine's object in using the wire in section boxes, was to insure safe transportation of comb honey to Europe.

I have very little faith in the success of traveling up and down the Mississippi, as proposed by Perrine. For many reasons, I should certainly prefer the railroad—or land route.

My friend, C. I. Balch, of Kalamazoo, Mich., went south last spring to work for Perrine. He was taken sick in June, and went back to Mich. He stopped to see me on his way home, and said he left the boat somewhere between St. Louis and Keokuk. Perrine started from New Orleans with a steamer, 2 barges, and about 400 stocks of bees. The steamer did not have power enough to make much headway in towing the barges, and they were abandoned near Bayou Sara. The bees were put on board the steamer on the lower deck, and were consequently badly crowded. When they got to the mouth of Yazoo River, Balch went aboard with 51 new swarms picked up near Yazoo City. Owing to the intense heat, the bees suffered badly, and to cool them off, the managers drenched them with water from a force pump. Balch says he saw, at once, that they were thus destroying their bees rapidly, and he remonstrated with them until they desisted. Before Balch left the "Enterprise," some 50 stocks, he thinks, were completely ruined.

The bees had been shut up some 2 weeks when B. left, and they must have been in a woeful condition. They intended to land as soon as they found plenty of white clover, and unload their bees; but the original idea was to keep them upon the barges, and let the bees work day times and travel nights, which, it seems to me, is impracticable; still it may succeed.

I have heard nothing *reliable* in regard to the "Enterprise," since Balch was here. I presume Perrine will make a partial success of the undertaking this season, but nothing like what he figured on upon paper. By the way, Perrine is a genius for calculating upon possibilities.

I am glad you are getting on so nicely with your paper and your business. I keep watch of all your movements, even if you don't hear from me very often. But why have your advertisers left you? Are your terms too high, or have you driven them away, so you can have a monopoly of the "bee trade?" When are you going to quit using so much fine type? M. M. BALDRIDGE.

St. Charles, Ill., Oct. 5, 1878.

Strictly speaking, the worker bee is an undeveloped female. Should we say *she* when referring to it?

In old English the pronoun "he" represented nouns of either gender; masculine, feminine, or neuter. At the present time, it is used when referring to the individuals of a class made up of both sexes. It is also used when we wish to represent an object as having masculine qualities. The fact that the worker bees take upon themselves the burdens of supporting the family, makes it natural to say *he* when referring to one of them, and, by so doing, do we not convey a true idea of his character, if not of his physical form?

A FRIENDLY CRITICISM.

GLEANINGS for October is on our table. I am much interested in GLEANINGS, and have been one of its subscribers since its first No. was issued; and I can say that it has contained many excellent articles. "Our Homes," I have liked very much, yet there are some points which should be criticised.

I think its editor takes a wrong course in reference to glucose petitions to Congress, and in praising his own wares, and taking up so much room in GLEANINGS for publishing letters from correspondents in praise of wares received from him, and by treating, with such contempt and indifference, letters from some of the most practical apiarians of our land, who oppose the course he takes.

Now, if we left things to take their own course, as you say with reference to petitions to Congress for the prevention of the adulteration of sweets, as well as to remedy many other evils, and left gambling, rum selling, Sabbath breaking, and other evils which I might name, we would not be doing our duty as fellow citizens. I think it is our duty to contend against evil in whatever shape it may come before us. If the better part of the citizens of—say Medina, O.—did not work for the suppression of some of the evils of its section, but quietly left things to take their own course, the evils would increase.

There are humbugs and swindles published in GLEANINGS, which I most heartily commend; but, right here, steps in the direct draft smoker of Bingham's, a noble one, indeed, which was immediately followed by the Simplicity, a complete trespass upon the former. In making losses good to patrons, GLEANINGS does more many times than I could ask.

I write the above with the best wishes for yourself and GLEANINGS. F. A. SNELL.

Milledgeville, Ill., Oct. 17, 1878.

Many thanks, my good friend Snell. I may be wrong, it is true, and if, as you say, you and the rest of my friends should let the matter pass, without even a remonstrance, I might get worse and worse. You will permit me to make a little defense, will you not? In regard to "my wares"; I have often thought of what you say, but have you duly considered, that none of these wares are patented, and none of them afford a large profit, for the very reason, that the manner of making them is so fully described, in GLEANINGS and the A B C, that any of you, can copy them and take the trade out of my hands, if there is margin enough? in fact, I am glad to have you do this. More than this, a better article than mine, and at a lower price, has been furnished by some of our readers, and often by one of the A B C class, at that. I try a thing, and am pleased with it; I give it to you, to buy or make as you choose, and then you report. Sometimes you give me considerable praise, and a large trade springs up. If I give my inventions to you all, is this not right? Sometimes as in the case of the paraffine fdn., I make a mistake, and get "Hail Columbia" from you all, and it takes so much of my money to fix the matter up, that I learn a severe lesson. Is this not right? I think it is. Remember, I have no monopoly; I do not advertise that the genuine can be obtained only of myself. Does not that make a difference? Should I stop the A B C class from sending in their reports of how they succeed with things, I should spoil one of the most valuable departments in our journal. Though most of our readers *are* of the A B C class, is it not my duty to consider their wants and wishes? Perhaps I have given too much of the "Smilery," and too little of the "Growlery"; if so, I will try and change it a little.

I heartily agree with you, that we should fight against evil in whatever form it appears. The grape-sugar matter will be considered elsewhere. It seems to me the smoker matter has been pretty well exhausted. If Bingham's patent is a valid one, and my smoker an infringement, I verily believe the kindest thing you can do with me, is to prosecute me to the fullest extent of the law. I know this is an extreme measure, but since there are so many different opinions, it may be the best way of settling it. If I am trampling on the laws, I ought to be taught obedience. I think I can promise to take the correction in a pleasant spirit, for although I have had quite a little deal with friend Bingham, I have never received any but pleasant letters from him. Suits at law need not, of a *necessity*, be quarrels.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

I HOPE you won't put me in the Growlery, but then you will do as you have a mind to, and that is the way to do.

I have any quantity of fault to find with this last order:—

The triangular sticks with which you fastened the wire cloth on the top and bottom of the nucleus which you sent me with the imported queen are splendid comb guides, and I shall use them. The queen was all right, with only about a pint of dead bees, and plenty of honey for another journey just as long as they had taken.

The way you wedged the frames was enough to (stop them from shaking) furnish me four more guides for L. frames.

The fdn. was enough for 35 worker L. combs, but I cut them diagonally, 5 in. one side, and 11 in. the other, for American frames, and they do very well, and are perfectly satisfactory.

The tin rabbets in the nucleus are the first I have noticed, and I think they are O. K. I don't see much chance for sticking the frames down.

The metal corners are as good as the best thing out, and I should advise everybody not to use either corners or rabbets for fear they would like them.

I think I have growled enough for this time, but, one word more; you can just book me for another order when I get time to send it. H. L. Jeffrey.

Woodbury, Conn., Sept. 2, 1878.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

Mrs. Cotton seems now to have the field, and I am very glad to say, she is almost alone. It is sad to think that the only one who demands showing up, in the bee business of our country, should be a woman. But the fact that she is a woman seems to be the secret of her getting her extravagant advertisements into so many of our leading papers. One of our subscribers sends us the following, from the N. Y. *Christian Weekly*, of Sept. 28th.

HONEY BEES.

NEW PRINCIPLES IN BEE-KEEPING.

Every one who has a Farm or Garden can now keep Bees with profit. Bees kept on my plan are more profit than anything connected with the farm or garden. Every hive of bees kept will pay a profit of Fifty Dollars. Address,

MRS. LIZZIE E. COTTON,
West Gorham, Maine.

In the same paper, the editors give her advertisement the following notice.

HONEY BEES.

We call the special attention of our readers to the advertisement of Mrs. Cotton in another column under this head. Mrs. Cotton is one of our most successful bee-keepers.

From the letters received, it would seem she has obtained space in a great many other papers in the same way. Below are a couple of samples.

Is Mrs. L. E. C., West Gorham, Maine, who advertised in late number of the *Country Gentleman*, responsible? By answering you will greatly oblige

Robert H. Belden.

Norwalk, Conn., Oct. 11th, 1878.

I also send an item of information, in the form of Mrs. Cotton's advertisement, clipped from *Farm and Fireside*. I hope you will never have any trouble to raise the needed "stamps," but suggest, should you be likely to fall short at any time, that you set your bees at work on her plan, and then you surely will have *all* the funds required.

Geo. W. Simmons.

Newark, Del., Oct. 8th, 1878.

You are right, my friend. If editors who receive such advertisements, even though they are not posted in bee culture, would reflect a little, it seems they should know such advertisements are not honest ones. If every hive of bees kept would, with her hive, produce a profit of $50., why in the world does she not get a hundred hives, and get rich? The *average* profit of a hive of bees hardly exceeds $5.00; in the hands of an expert, it may, perhaps, reach $10.00, but even then, it is the owner's care, and not the hive, that produces such a result.

To test the matter, and to be sure she does not send an equivalent of any kind for money sent her, we have been sending her money, and writing her letters, almost ever since she began advertising. She replies and excuses herself and makes promises sometimes, but the promises are never kept, and no goods, nor a cent of the money has ever been returned. That the papers who have published her notices may be fully satisfied of her way of doing business, I give the following from one of our back No's.

I have every reason to fear that I am *one* of her *victims* to the amount of $20.00 as she *doesn't fulfill.* Had I seen your article before sending the money I should not have sent it, or had any business transaction with her. I shall write her again very soon, and if she fails to do as she positively promised I shall pronounce her a *fraud*, and hope she may be published to the world, that others may not be deceived, and loose by her as I undoubtedly shall.

Mrs. A. K. Tuthill.

East Cleveland, Ohio, June 22d, 1877.

The following very sensible remarks in regard to flaming advertisements, are from Mrs. Harrison in a recent No. of the *Prairie Farmer*.

IT CANNOT BE DONE.

In the *Western Rural* of Sept. 28 is a communication from "Julius," of Cedar Rapids, Ia., extolling a bee hive, patented by H. F. Poggenpahl, of Iowa City. He says, "By using this hive a thousand pounds of honey can be secured in a season, when by using the common kind you would hardly obtain 200." And "Julius" is so disinterested that he will guarantee to refund the money to all purchasers of farm rights for this hive, who are not satisfied. Oh "Julius" Cæsar! what liberality! I have no fear of experienced apiarians being "taken in" by such offers and advertisements; only gudgeons will bite at so bare a hook (confiding people. inexperienced bee-keepers). But ought not a respectable journal to be a little more careful about admitting to its columns irresponsible communications, gotten up to tally with advertisements?

We have kept bees for many years, and (we think) with good success; and have never yet taken 200 pounds of box honey from a single swarm in a season, and never expect to. From thirty to forty pounds per hive, of box honey, is a good average, and very satisfactory; by extracting, considerably more may be obtained. We have new swarms that have given us over 50 pounds of choice box honey the present season, but this is the exception, and not the rule.

Now, of this wonderful hive (the "Excelsior" I believe it is called), I know nothing; it may or may not be a good hive. But let all remember that a swarm of bees will store as much honey in a hollow log as in any hive. The advantages of a movable frame hive, are that it gives you control of the bees, enables you to ascertain their condition, give brood, introduce a queen, or transfer. For taking surplus honey in good shape for the market, there is probably nothing better than the "prize box." We have exhibited box honey at many fairs, and borne away the "blue." Mrs. L. H., Peoria, Ill.

—*Prairie Farmer. Oct. 12th.*

BEE BOTANY AND ENTOMOLOGY.

CULTIVATION OF THE SPIDER PLANT.

I have several letters from parties wanting to know more of this plant, either by letter or through Gleanings. I choose the latter, by your permission.

As we have had but one year's experience with it, I can not give you an infallible rule for cultivation, but only our method. Mr. Large took a common corn marker, and fastened two temporary pieces between the runners, making the drills about two feet apart, then dropped the seed by hand. In some places, the plants were too thick; these he transplanted, and they are in bloom to-day. Now, we think the better way would be to sow the seed in a bed, as early as possible, and then transplant, setting the plant 2 ft. by 3 ft. apart, and keeping the ground clear and loose, to secure a quick, rank growth. They grow from 4 to 6 ft. high, in rich soil. We have been trying to make an estimate of the amount of honey one acre would produce. Ours commenced to bloom in June—say it has been in bloom 3 months. Each plant has from 3 to 15 (say 8) peduncles, each peduncle 5 to 8 (say 6) pedicels, and each pedicel 1 drop, (say ⅓ of a drop).

The above figures would give 16 drops to a plant each day. If they are in bloom 90 days and there are 7260 plants to an acre, we have 7260x16x90 drops to an acre during the season. Dividing this product by 61,440, the number of drops in a gallon, we have 170 gallons to an acre—say 100 gallons.

I don't see why I should make it any less. We may be deceived; we are only testing it, and wish you to do the same. I have not tried to save much seed, fearing it might prove a failure, and you would say that I knew it but wanted your money. I think I have enough to give all that desire it a small package, and let you try for yourselves; for, I believe the day is not far distant when we will plant our honey crops, in proportion to the number of little workers we are able to set to gather it.

Mr. L. sends his compliments to you, friend R., for praising his wife's ingenuity, but I'll tell you, on the sly, he tied the lace on, then, after awhile, went back, took it off, and set watch over it, when he spied a lean, lank, hungry fellow gorge itself from three buds, then off to the hive. I would describe the seed and pollen part of the plant, but have written too much already.

MOLLIE O. LARGE, Pine Hill Apiary.
Millersville, Christian Co., Ill., Oct. 18th, '78.

P. S.—Will those sending for seed, please send the money instead of stamps. M. O. L.

◆

GRAPE-SUGAR AND ADULTERATION.

I HAVE been asked why I did not give friend Dadant's paper a place in GLEANINGS. Principally, because of the following sentence which it contained:—

"That this glucose is manufactured from corn starch, by boiling the starch with sulphuric acid (oil of vitriol), then mixing with lime. The glucose always retains more or less of sulphuric acid and lime, and sometimes it has copperas, sucrate of lime, etc."

In the *A. B. J.*, for Oct., page 353, Mr. Dadant makes the following statement:—

"In France, solid glucose is obtained by evaporating liquid glucose. Here it is obtained by putting in it a greater quantity of chalk, and the vendors of that compound, under the name of "grape-sugar" (Mr. Root included), should be published as swindlers and humbugs in *Gleanings!*"

I do not know how sulphuric acid and lime could both be found present in an active state in the same substance, for one would neutralize the other; nor can I see how it would be very profitable to boil down glucose worth 5c. per lb., into grape-sugar worth 3½c. per lb. It is a singular fact, that although glucose is a liquid, and grape-sugar a solid, the latter contains a much larger per cent. of water held, by a curious law in chemistry, in a solid state. If we produce the grape-sugar by adding chalk, as friend D. suggests, I am afraid we should soon come to grief, for chalk is an insoluble compound, and the first lump of sugar our purchaser put into his mouth would reveal the cheat. I know, by the letters received, that there are those so thoughtless as to suppose that it is possible to add chalk; will those people please dissolve a lump of the grape-sugar in a little warm water, and see if it does not all dissolve perfectly. I might have published the article, it is true, and it may be my duty to give everybody a hearing, even should they send in a paper claiming the moon was made of——chalk, but would it be profitable to occupy space thus? I have had some experience in declining articles, and as writing the parties my reasons for their rejection almost always results in a controversy, I have thought it best to simply lay them aside, unless I am asked to return them, which I am always ready to do.

A copy of the address delivered at the Kansas State Bee-Keepers' Association contains the following:—

"Glucose, with which honey and syrups are adulterated, is made of sulphuric acid, lime and corn starch; and it is said that rags answer the same purpose as the corn starch to give the syrup body, the color of the syrup being regulated by the cleanliness of the rags. Is it not time that the people knew that they were eating old rags, dissolved in sulphuric acid and lime, made into *dope* to poison our people? I say dope because I don't like to dignify it with the word syrup. And it is not only mixed with honey and syrups but it is actually sold without mixture, in all its filthiness, to the unsuspecting."

The orator winds up the matter with a piece of profanity, which I have left out. Although it was printed in full, and put in quotation marks, I hope it was not so spoken before the association. I am inclined to think there is much honest misapprehension. In the manufacture of many kinds of sugar, especially corn sugar, an acid is used to convert the starch into sugar, a well known chemical process. Starch and sugar are, chemically speaking, almost identical, and the acid simply converts the one into the other, without taking from, or adding to it a particle of anything. To remove the acid, after it has performed its office, chalk is used, and the business of the refiner is to remove every trace of both these substances. I presume the Davenport factory use car loads of both the chalk and acid, in this chemical process, and this may have given rise to the thoughtless statements made above. The refiners of cane sugar, use tons of blood and offal from the slaughter houses, as well as burnt bones; but our sugar of commerce contains none of these articles. If grape-sugar is made in so slovenly a manner as to contain articles prejudicial to the health, the matter should by all means be taken in hand. I have bought it from both the Buffalo and Davenport factories, and the sugar sent me for feeding bees, certainly contained neither chalk nor sulphuric acid. I feel just as safe in feeding it, or eating it myself, as I would in eating the corn meal from which it is made. A petition gotten up with the misapprehension shown in the one sent me for publication, I think would come to naught, as it should do; but if more stringent laws are needed than those we have, I will vote for them by all means.

We have laws already for the prevention of adulteration of syrups and honey, and when we have tried other means and failed, I will be with you in putting them in force, with all my heart. Dadant and I have been good friends for many years, and I hope may be so still; I have no fear that his unkind words uttered in the heat of controversy will harm me; on the contrary, they may set me to thinking, and do me good.

The following correspondence illustrates the misconception in regard to grape-sugar and glucose:—

"Please send me a sample of your honey, made by the bees, from glucose. I am anxious to see how it looks and tastes. C. B. F. BANGS.
North Lansing, Mich., Oct. 6, 1878."

I have never fed any glucose, except a small quantity, perhaps a table spoonful, for experiment. Having it stored in the combs by the bees, would not change it to honey; it would be glucose still, and no one would ever think of calling it honey. The fact that it is so much more expensive than grape sugar, is the reason we do not use it.

"Your postal is received. Perhaps I ought to have said grape-sugar instead of glucose. Please send me a sample of honey, made by bees, from grape-sugar. If you cannot, please return the 16c., using the remaining 3c. to pay postage, and oblige
C. B. F. BANGS.
North Lansing, Mich., Oct. 13, 1878."

But, my friend, grape-sugar does not make honey, nor anything like it. When stored in the combs, it is grape-sugar still; a substance more like pollen than honey. We return your money.

◆

OUR friend Viallon, of Bayou Goula, La., bids us assure customers that, if any of his business with them has not received its usual prompt attention, it is on account of the terrible yellow fever scourge. All will be made right as soon as possible.

Do not worry, if you do not find brood in your hives this time of year; queens seldom lay now, unless the colonies have been fed, or the queens are very young. If there are plenty of bees, they are just as well off, and perhaps better, without brood, from now until Jan. 1st.

WE have now a full report of the meeting between the drones and queen. It comes from California, the land of bees and sunshine, and will be given in full next month. It takes place in the open air, not very high up, sometimes at least, and not far from the hives.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, NOV. 1, 1878.

For he shall give his angels charge over thee, to keep thee in all thy ways. They shall bear thee up in their hands, lest thou dash thy foot against a stone.—Ps., 91; 11, 12.

◆

IN getting stamps to send us for fractional parts of a dollar, please procure 2 cent stamps, if you can, as we use them for sending sample copies.

◆

OUR present system of patent laws is already tottering, and seems about to fall. I glean this from the vehement protests being made by those interested in the business of procuring patents.

◆

A DEDUCTION of 5 per cent. will be made on all Hives, Section Boxes, Honey Extractors, Comb Foundation Machines, or other goods that cannot be used until another season, if ordered before January 1st.

◆

I WILL pay 75 cts for the first 6 No's of GLEANINGS for 1878, and will sell them, if wanted, for $1.00. So, friends, you see you have the reading of them for nothing and make 25 cts. besides. It is possible the No's you are subscribing for now will be in equal demand in a few months.

◆

IN a visit to our neighbor Shane, a few days ago, I saw a feeder at the entrance of his hives, that is, substantially, the "Boss" feeder recently patented by our friend Shuck. As Mr. Shane had been using it over a year, I think we shall have to conclude that anyone is at liberty to add the attachment to the Simplicity feeder, if they wish.

◆

WE have sent queens, in the bottle cages, all thro' the month of Oct., with less losses, I really believe, than in any other month when I have shipped bees. We put in bees enough to make a good cluster, and they stand frosty nights without trouble. The dollar queens are all gone, but we can supply tested queens, I think during this whole month of Nov. If they freeze, it will be my loss.

◆

AND now it is friend Muth who has got a patent on the slanting basket for an extractor. In 1867, I made an extractor with slanting sides to the comb basket, but did not like it, because it threw the honey out at the top of the combs and did not at the bottom. If I turned fast enough to throw it out at the bottom, it was likely to throw brood out, at the top. The machine is now in possession of a neighbor. A little later, Adair, in one of his pamphlets, illustrated with diagrams the same principal, and, if I am correct, he too had a patent on the idea.

◆

WHEN I described the plan of putting wires in the frames, in Sept. No., I was not aware that anyone else had done the same or a similar thing. A friend has pointed me to the fact that, in the July *A. B. J.*, Mr. D. S. Given, of Hoopeston, Ill., gives the same plan, only his wires ran horizontally. It is possible that I got the hint there, but afterward forgot it, for I certainly had no intention of claiming the invention of another as my own. He suggests No. 26 wires; I would certainly not use anything heavier than No. 36.

The plan mentioned last month of making wire-cloth to be dipped in melted wax is a success, but, at present, the fabric is too expensive.

◆

WE have just received the cheering news, that 50 imported queens are on their way from Italy. They will probably be here ere this reaches you. As we shall have little opportunity for testing their progeny this fall, the price will be $4.00 for the dark ones, and $5.00 for the yellowest. We shall get them to laying at once, if possible, by feeding grape-sugar; when the workers appear, those which produce the largest and yellowest workers and are yellow themselves will be $6.00. The $4.00 queens frequently produce as fine bees as any. A careful watch will be kept, to see if any go out for fertilization before laying; if any such be discovered, they will be sold for half price.

◆

IT has been said, at some of the conventions, that no good comes of publishing the reports of those who have made great results with a few colonies; that it rather does harm. I admit that it would do harm, were only one side of the question given. To get a fair view of the work, Blasted Hopes should have a place, as well as Encouraging Reports. It may be objected that neither will do any particular good. Well then, suppose we all keep still, and "don't say nothin'." Unfortunately, we are a social set of animated beings, and if we could not talk and visit, we might get the blues and all commit suicide. Perhaps our friends who make such long speeches would say that wouldn't matter either. In that case, I guess I should give up, and let them have the floor.

◆

THE greater part of us are now domiciled in the new building. The new printing press is printing the very letters you are looking at, the 50 horse power engine is driving a long line of shafting, and a "heap" of machinery; the lumber yard adjoining is stocked with piles of seasoned lumber of every description for hives and section boxes, etc.; the masons are at work up stairs, plastering a multitude of rooms, for each set of hands are to have a room all by themselves. There is one for the compositors, one for the shipping clerks, one for the bookkeepers and corresponding clerks, one for the painters, one for folding, sewing, and addressing the journals and price lists, one for seeds of bee plants, one for samples of all the goods we make and keep for sale, a tin shop, wax room, lathe room, and——and——my money is all gone, and the hands have not been paid for two weeks. Notwithstanding, they have faith in me, and I trust we all have faith in God to take care of us.

DEPOSITORY OF
Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

QUEENS FLYING AWAY IN INTRODUCING.

MY report is not very encouraging, so I guess I will not send it, but will give a little of my experience (which is a dear teacher though fools will learn in no other). I had a stock which I supposed was queenless, as I could find neither eggs nor queen. So when the queen you sent me arrived, I proceeded to introduce her majesty as directed. In 15 minutes, I found her in a ball on the bottom of the hive, caged her, and searched and found a queen with one wing. I placed the cage on top of the frames, and next day found the bees walking over the cage, and all seemed quiet; I opened the cage when the bees rushed in, and the queen rushed out and flew away, but did not come back. Not very good property up among the clouds. My hopes are not blasted yet; shall try again.

M. L. HUDSON.

Charles City, Iowa, Oct. 21st, 1878.

I have tried hard to find just one letter for this department, but the above is the best I could do among the A B C class. Perhaps some of the veterans might have given us a more fitting one, if they only would. This flying away of queens is rather bad business; I do not know but we shall have to clip all the wings before we send them out, after all. Daubing their wings don't always do, for they often have to be caged again, and then the honey drying on their bodies is liable to kill them, by stopping their breathing pores. If put among the bees, where they can be licked off, it does them no harm.

QUEENS. The most important personage in the hive is the queen or mother bee. She is called the mother bee because she is, in reality, the mother of all the bees in the hive. So much has already been said of queens, in ARTIFICIAL SWARMING, DRONES, and QUEEN REARING, that I presume our A B C class are already pretty well acquainted with her majesty, as she is frequently designated.

If you deprive a colony of their queen, the bees will set to work and raise another, so long as they have any worker larvæ in the hive with which to do it. This is the rule, but there are some exceptions: the exceptions are so few, however, that it is safe to assume that a queen of some kind is present in the hive, whenever they refuse to start queen cells from larvæ of a proper age.

What do I mean by a queen of some kind? Well, I shall have to tell you that bees, especially when deprived of their queens unnaturally, and broken up into small colonies or nuclei, as beginners are very apt to have them, in order to raise a queen, often select a worker larva so old that the queen raised from it is about half worker, and half queen.

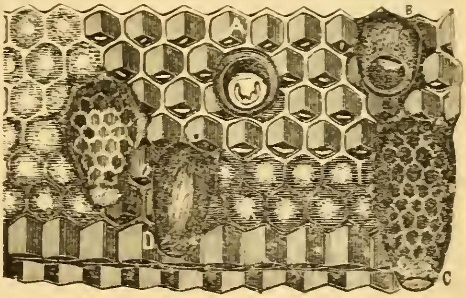
IMPERFECTLY DEVELOPED QUEENS.

Such queens are small, usually dark in color, and will sometimes become fertilized, and lay eggs for a little while (all the way from a week to several months), but they are never profitable. Sometimes they will not lay at all, but will remain in a colony all through the season, neither doing any good, nor permitting any other queen to be either introduced or reared. A wingless queen, or one with bad wings, will produce the same result. The remedy is to hunt them out, and remove them. Where they are so near like a worker bee as to make it hard to distinguish them, they may often be detected by the peculiar behavior of the bees toward them. See HOW TO FIND A QUEEN.

So far as I have been able to make out, these half worker queens are the result of trying to raise a queen when there are too few bees, or when the larvæ with which they are obliged to rear a queen is too old; that is, too nearly ready to seal up. Where they can do no better, they will undertake to rear a queen from larva only one day before sealing up; it will be, at this age, almost full size, being 6 days from the time the egg was laid. They enlarge the cell, dose it with the royal jelly, and from that time onward, it has the care given a queen from the egg. I have watched such queens, when they first came from the cell, and some of them were little, if any, different from a common worker; others would have the body a little more elongated, and a peculiar taper, or slimness, that, to a practiced eye, invariably distinguishes the queen from the worker.

HOW A WORKER EGG IS MADE TO PRODUCE A QUEEN.

This is a question often asked, and it is one that puzzles me about as much to answer, as any question a visitor can ask. I cannot promise to tell you all about it, but I will tell you all I know about it. We will first get a frame of eggs, as we did in studying BEES, but we will vary the experiment, by putting it in a colony having no queen. The minute eggs will hatch into larvæ as before, but about as soon as they begin to hatch, if you look carefully, you will see some of the cells supplied with a greater profusion of the milky food than others. Later, these cells will begin to be enlarged, and soon, at the expense of the adjoining ones. These are queen cells, and they are something like the cup of an acorn in shape, and usually occupy about the space of three ordinary cells. In the drawing below, you will see cells in different stages of growth.



QUEEN CELLS.

At A, is a cell just being converted into a queen cell; at B, one where the thin walls are extended so as to form a queen cell proper, almost ready to seal up; at C, a cell just sealed. This occurs at just about 8 days from the time the egg was laid. In 8 days more, 16 days in all from the time the egg was laid, the queen will hatch out, a perfect insect. Now bear in mind exactly what I say, or you will get confused. If, instead of eggs, larvæ 6 days old is given the bees, they will rear a queen, and, in this case, she will hatch in only 10 days after the larvæ was given them. These 10 day queens may be just as good as any, but to be on the safe side, I would prefer giving them larvæ one or two days younger, that they might have the benefit of this excess of food and larger cell, during the whole of their larval period.

The 6 day larvæ are quite large fellows, as you will see by the cut under the head of BEES.

There are some queer things about queen cells, as you will notice. After the cell is sealed, they go and put a great excess of wax on it, give it a long tapering point, and corrugate the sides something like a thimble, as shown at C. This corrugation, or roughness, when closely examined, will be seen to be honey comb on a very small scale. Now right here is a point that you will not fail to observe; bees, like other folks, sometimes make mistakes; for they do not seem to know any better than to use a drone larva for rearing a queen, if such happens to be present. Therefore, when selecting eggs for this purpose, be sure you do not give them any contained in drone comb. They will go right on, and dose the poor drone with the royal jelly, but the poor fellow usually dies before it is time to hatch out, and then the bees and their owner wait in vain for the cell to hatch. It has been reported of late, that the inmate of such a cell sometimes hatches, but he is only a drone, even then, and not a queen. Well, I am glad to be able to tell you that you never need waste time on this kind of cells, for the bees have a way of marking them, unconsciously, it would seem, too; queen cells containing drone larvæ are always smooth, having no corrugation; so you can always detect and remove them before valuable time is wasted. We have pictured one at D.

Now, it is very handy to be able to tell about when any queen cells you may happen to find unexpectedly will be likely to hatch; and the bees are very accommodating in this respect also; for, about the day before the queen hatches, or it may be two days, they go and tear down this long peak of wax on the tip of the cell, and leave only a very thin covering, as shown at E. I do not know what this is for, unless it is because they are anxious to get a peep at their new mother. It has been said, they do it that she may be better able to pierce the capping; but sometimes, they omit the proceeding entirely, and I have not been able to see that she has any difficulty in cutting the cap off. If the cell is built on new comb, or on a sheet of fdn., and it be held up before a strong light, at about the 15th day, or a little later, you will see the queen moving about in the cell. A little later, by listening carefully, you can hear her gnawing her way out. Pretty soon the points of her sharp and powerful mandibles will be seen protruding, as she bites out a narrow line. Since she turns her body in a circle while doing this, she cuts out a circle so true, that it often looks as if cut out by a pair of compasses. Now observe that the substance of which the cell is made is tough and leathery, and therefore, before she gets clear around her circle, the piece springs out in response to her pushing, and opens just about as the lid of a coffee pot would, if a kitten should happen to be inside crowding against the lid. I have often seen them push the door open and look out, with as much apparent curiosity, as a child exhibits when it first creeps to the door on a summer morning; often, after taking this look, they will back down into their cradle, and stay some time. This is especially the case when other queens are hatching, and there is a strife as to who will be the reigning sovereign.

We shall have to go back a little, and consider this strange substance called

ROYAL JELLY.

The milky food before described, which is given to the young larvæ, and which is supposed to be a mixture of pollen and honey partially digested, is very similar, if not identical, in composition with the royal jelly. The bees are not the only examples in the animal kingdom, where the food is taken into the stomach by the parent, and after a partial digestion, is thrown up for the use of the offspring. Pigeons feed their young precisely in this way, until they are able to digest the food for themselves. It has been stated that bees use a coarser food for the worker larvæ, after they are a few days old, and also for the drone larvæ, during the whole of their larval state. What I mean by a coarser food is, a food not so perfectly digested; in fact, drones are said to be fed on a mixture of pollen and honey, in a state nearly natural. This may be so, but I have no means of proving it to my satisfaction. It has also been said, that the queens receive the very finest, most perfectly digested, and concentrated food, that they can prepare. This I can readily believe, for the royal jelly has a very rich taste—something between cream, quince jelly, and honey—with a slightly tart and a rank, strong, milky taste that is quite sickening, if much of it be taken. I am much inclined to think that the same food that is given the young larvæ at first, will form royal jelly, if left exposed to the air, as it is in the broad, open, queen cells. After a queen has hatched, it is sometimes found dried down hard, and looks much like stiff fruit jelly. Whether this is the product of the milky food when allowed to stand, as I have suggested, is a question to be decided. The bees when rearing queens, furnish this food in profusion, and I have seen, during the swarming time, single combs that contained a good spoonful, deposited, of course, in queen cells. Here is quite an unexplored region that I wish the A B C class would work up, and report upon.

WHAT DOES THE QUEEN DO WHILE SEALED UP?

Candidly, I do not know very much about it, although I have opened cells at every stage after they were sealed, until they were ready to hatch. One day after being sealed, they are simply an ordinary larva, although rather larger than worker larvæ of the same age; after two or three days, a head begins gradually to be "mapped out," if that is the proper expression, and later, some legs are seen folded up; last of all, a delicate pair of wings come from somewhere, I hardly know how. Two days before hatching, I have taken them out of the cell, and had them mature into perfect queens, by simply keeping them in a warm place. I have also taken them out of the cell before they were mature, held the white, still, corpse like form in my hand while I admired it as long as I chose, then put it back, waxed up the cell by warming a bit of wax in my fingers, and had it hatch out three days after, as nice a queen as any. Mr. Langstroth mentions having seen the whole operation by placing a thin glass tube, open at both ends, into the cell, so as to have it enclose the queen, the bees being allowed to cap it as usual. If I am correct, this experiment was first made by Huber. With several such glass queen cells, and a lamp nursery, I presume the whole operation could be watched from beginning to end. Who will be first to do this, and give us a history of the changes?

DAVIS' TRANSPOSITION PROCESS.

In the month of August, 1874, after I had discovered how to send larvæ for queen rearing, safely by mail, for short distances, our friend, J. L. Davis, of Delhi, Ingham Co., Mich., wrote that he should get a large number of queens from the piece I sent him, for he was going to remove the larvæ from the cells and place them in queen cells already started in his hives; of course, removing the original larvæ first. I caught at the idea at once, and went to some hives of hybrids that had persisted in tearing down all the cells given them, and building others from their own brood, and removed the larvæ from all the cells, substituting larvæ from the imported queen in its stead. I used a quill toothpick, for making the transposition. Almost every cell was built out and capped, just as well as if they had kept their own black stock. In due time, I had as nice a lot of fine yellow queens as I ever reared. We have practiced this method. almost every year since.

Mr. Davis described his invention in the Sept. No. of GLEANINGS, for 1874, and it has been commented on and suggestions added, in almost every volume since. From letters received from other parties, it seems that he may not have been the first person to make the discovery that larvæ could be thus safely transposed, but as he was the first one who made the discovery known to the public, and put it into practical and profitable use, he certainly deserves all credit and honor for his discovery, and a vote of thanks for generously giving it to the world at once, without any thought of reserving it for his own private benefit, as he might have done.

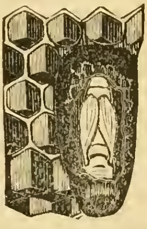
During the past season, we have used a tiny silver spoon, made on purpose for removing the larvæ, and as much of the milky food along with it, as is possible. I need hardly caution you that these small larvæ are very tender and delicate, and will hardly bear so much as a touch, without injury.

WHAT BECOMES OF THE QUEEN AFTER SHE GETS OUT OF THE CELL?

I am glad to say, that I can tell you, by personal observation, pretty nearly what a queen does, after she pushes open that hinged door, that I told you of, and which you will find illustrated under the head of QUEEN REARING. She generally begins to put her head into the cells until she finds one containing unsealed honey, from which she takes a sup that, at least, indicates that she likes that kind of provision. May I digress enough here to ask, if it does not almost seem proper to say that she *remembers* where honey is to be had? *She* never existed before, it is true, but are you sure she does not remember at all what her mother and grandmother did ages and ages before her? It may be as well to say she does it by instinct, but I confess that term hardly satisfies *me*.

After she has had her supper, she begins to crawl about, partly to enjoy using the long strong legs God has given her, and perhaps, because she "remembers" that it is her allotted task to tear down the remaining queen cells, if such there are. If other queens have hatched before her, it is one of her first and foremost duties to look them up, and either reign supreme or die in the attempt. If all the other cells have been removed, as they usually are where queens are wanted for other purposes, she has nothing to do, but to promenade over the premises, monarch of all she surveys. If she ever sits down to take a rest, or takes a rest in any other position, during the first week of her life, I have never been able to discover it. She is always traveling about, and this is one reason why I am averse tò caging young queens, in order that we may allow several to hatch in the same hive. It seems to be natural for them to run about, and I believe it is necessary for their well being. Several years ago, I thought I had made a brilliant discovery, when I succeeded in hatching all the queen cells in the hive, under cups made of wire cloth. The first hatched was allowed to run, until she became fertile, and began laying; she was then removed, and the next released, and so on. I think I succeeded in getting four laying queens from the single lot of cells, all in the one hive, but the bees made such desperate efforts to get the obnoxious cages out of the way, and the inmates of the cages to get out, that I gave up the plan, after seeing several fine queens die of nothing else, so far as I could see, but confinement.

But suppose she does find another cell; what then? Well, she sometimes runs around it awhile; sometimes, the bees tear it down, and sometimes she tears it down herself, with the same strong mandibles that she used to cut her way out of the cell, at first. She usually makes the opening in the side of the cell, as shown in the accompanying cut.



QUEEN CELL TORN OPEN.

Now, it is said that the queen immediately stings her helpless immature sister, to make a sure thing of her destruction; but of this I am not certain, for I never saw her in the act of so doing. I have seen spots in the side of the queen, that looked much as if she had been stung, but I have also rescued cells and put them in the lamp nursery after they had been torn open, and had them mature into nice queens. As these immature queens are very soft, the workers will soon pick them out of the cell, piece by piece, and I have sometimes placed them in the lamp nursery and had them mature, minus a wing or leg, or whatever portion the mischievous worker had pulled away. I judge from many such observations that the queen generally tears a hole in the cell, or bites into it in such a way that the workers take hold of it, and tear it all down, much in the way they do any mutilated or broken piece of comb. When queen cells have been cut out, all the larvæ that is in any way injured is at once thrown out, and none but the perfect cells preserved. Bees never fuss with cripples, or in trying to nurse up a bee that is wounded or maimed. They have just the same feeling for their fellows that a locomotive might be expected to have for a man whom it had run over. They battle against anything that threatens the extinction of the colony, it is true, but I have never been able to discover any signs of their caring for one of their number, or even having compassion on their helpless brood, when it is wounded and suffering. If a hole is made in a queen cell, by the queen or anybody else, they are very likely to tear it down and throw it away. When a queen hatches, the remaining cells are very soon torn down, as a general thing, but there are many exceptions. When two queens hatch out at about the same time, they also generally proceed to kill each other; but I have never heard of both being killed. This probably results from the fact that they can only sting their rivals in one certain way, and the one that by strength or accident, gets the lucky position in the combat, is sure to come off victor. This explains how a very inferior virgin queen, that has got into the hive by accident, may sometimes supplant an old laying queen. Two queens, when thus thrown together, generally fight very soon, but this is not always the case. Several cases are on record where they have lived in peace and harmony for months, even when hatched at about the same time, and it is quite common to find a young queen helping her mother, in the egg laying duties of the hive, especially, when the mother is two or three years old. If the season is good, and the hive populous, very often, instead of a fight, they divide up their forces in some way, and we have AFTER SWARMING, which see.

Sometimes the queen will pay no attention to the remaining cells, but will let them hatch out, and then their "little differences" are adjusted afterward, either by swarming, or by the usual "hand to hand" conflict "until death." I once looked for a queen, and not finding her, concluded she was lost. Another cell was inserted, and in due time hatched out. I was much surprised to find my new queen laying when only one day old, but a little further looking revealed the two, both on the same comb. Many losses in introducing queens have resulted from two queens being in the hive, the owner being sure his hive was queenless, because he had removed one.

QUEENS' VOICES.

When a colony swarms naturally, the young queens of the after swarms have a queer way of calling to each other, when about to hatch out, I suppose, or when they have their cell doors open, and are afraid to emerge. The note they utter is more like "zeep, zeep, zeep," than anything else I can spell, and their tones are so different that it is really amusing to hear them call. It is common to hear them where there are two queens in the same hive, in a fighting mood, or stirred by jealousy; and I often hear this call when simply passing by the hives in swarming season. The queen sometimes utters this call at other times, though not often. When a young queen is being introduced she will frequently utter a similar note of alarm, and some of our friends have called it "squealing." The bees are almost always stirred by these notes of the queen, and they will often turn and run after her and cling around her like a ball, when they would have paid no attention to her had she not uttered this well known note. After you have once heard it, you will recognize it ever afterward. Queens, when placed near together in cages, will often call and answer each other, in tones that we have supposed might be challenges to mortal combat.

Some queens received this summer, from J. P. Henderson, of Murfreesboro, Tenn., called so loudly when placed on our table, that they could be heard clear across a long room. One voice would be on a high shrill key, and another, a deep bass, while others were intermediate. On watching closely a tremulous movement of the wings was noticed, while the queen was uttering the note, from which I infer that the sound is produced by the wings, in a manner similar to that in which katydids and locusts produce their peculiar notes. The fact that a queen may be prevented from "squealing" while being introduced, by daubing her wings with honey, is also conclusive that the sound is produced by the wings. That these sounds from the queen have the power of controlling certain movements of the bees, I am well aware, but I do not know just how or to what extent this influence works.

VIRGIN QUEENS.

The newly hatched queen is termed a virgin queen to distinguish her from queens that have been fertilized by the drone and are laying. Virgin queens, when first hatched, are sometimes nearly as large as a fertile queen, but they gradually decrease in size, and when three or four days old they often look so small and insignificant, that a novice is disgusted with their appearance, and if he is hasty, pronounces them good for nothing. For the first week of their lives, they crawl about much as an ordinary young worker does, and it is often very difficult, if not almost impossible to find them, unless an amount of time is taken, that is more than a busy apiarist can well afford to spare. In QUEEN REARING, I have advised not to look for them, but to insert a small piece of comb containing larvæ, and if no cells are started, to decide that the queen is present, without looking. This piece of larvæ answers a three-fold purpose. It tells at a glance, whether the queen is in the hive all right or not, for the very moment she is lost, they will start more queen cells on it; it enables the bees to start another queen, in case the queen is lost by any accident in her wedding flight, which is frequently the case, and lastly, it serves as a sort of nucleus to hold the bees together, and to keep them from going out with the queen on her wedding trip, which they are much disposed to to do, if in a small nucleus, containing no brood. Unsealed brood in a hive is a great safeguard against accidents of all sorts, and I have often started a young queen to laying, by simply giving the bees some eggs and unsealed brood. Whether it caused her to rouse up and take her wedding flight, or whether she had taken it, but was for some reason idle, I cannot say; but this I know, that young queens that do not lay at two weeks of age will often commence, when eggs and larvæ, are given to their colonies. It may be that the sight of eggs and larvæ suggests to them the next step in affairs, or it may induce the workers to feed them, as they do a laying queen, an unusual quantity of food.

GRAPE SUGAR FOR BEES.

HOW TO FEED IT.

IN the first place, you must not undertake to keep your bees over winter on grape sugar alone, for although it can and has been done, there is always a liability of their starving to death, when confined to it and nothing else. So long as they have access to it in a liquid state, it is, so far as I know, just as good as honey; but in cool, or cold weather, it very soon hardens in the cells, and unless the cluster is large enough to cover the whole and warm it up, they may starve to death, when it is right against them. Perhaps, the readiest means is to place some lumps of it right among the bees, on the top of the frames. If the lumps are not too large, they will warm them up nearly to a liquid state, and use them all up. Bees have been wintered on it alone, in this way, but unless watched closely, it is rather unsafe. You can easily fill a frame with it, by putting the grape sugar in a new tin pan on the stove and warming it gradually without water, until it is so soft as to be readily spread with a knife. Lay a paper on the table, your frame on the paper, and with a knife or spoon, fill the frame evenly. In 24 hours or less, you can hang the frame in the hive, in the centre of the cluster. If a colony has a very little honey, you can make it last them all winter, by a judicious use of grape sugar. You can make it into a syrup with water, either by boiling, or stirring the sugar and water together cold. Hot water dissolves it quickest. Make the syrup pretty thin, or it will be in great danger of getting on the bees, and sticking their wings together so they cannot fly, for it is of a glutinous nature. If fed in the Haines feeder described in our price list, this cannot happen. As it is always liable to harden quickly in the feeders no matter how thin it is made with water, I dislike fussing with it in the form of syrup. It is sticky and dauby stuff to handle, unless you are careful; if you are as careless with your work as some of my boys are, I would advise taking your box of sugar and utensils away from the house, out on the grass somewhere before you begin to work with it. As the bees do not care enough about it to fight for it, as they do honey, you can feed it in the open air at any time. They will carry away a whole barrel in the course of a few weeks, and do it as quietly as if it was so much meal. Some feed it in the form of a syrup with about a fourth or fifth part of honey added. In this shape, they will take to it with much more readiness. For comb building, brood and queen rearing, during a dearth of honey, it is an excellent and cheap substitute for either honey or sugar. While the bees are getting honey in the fields, I presume they could not be well made to notice it, for at such times, they will rarely notice even cane sugar. When bees are short of pollen, I presume this sugar is better than even cane sugar (although it contains only about $\frac{1}{3}$ the sweetening power) on account of the starchy principle it contains. Grape sugar is manufactured from Indian corn, and where corn is cheap, should be the place to have it manufactured and exported.

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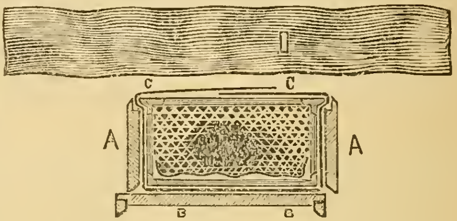
HOW TO MAKE A SIMPLICITY OR LANGSTROTH HIVE ANSWER THE PURPOSE OF A CHAFF HIVE FOR WINTERING, AS NEARLY AS POSSIBLE.

IF you put one of the chaff cushion division boards in each side of the hive, you have the sides very well protected; but the ends are left exposed to the influence of the frost. I believe it is pretty generally admitted, that the air space between the ends of the frame and the ends of the hive is rather a bad feature for the most successful wintering. The idea of filling these spaces with a thin cushion of some kind of fabric is not a new one, but the amount of fussing it required has been an objection to it. We have just fixed for wintering, some colonies which are to contain some of our imported queens, and the plan pleases me so well, that I will describe it.

Cut a piece of burlap 24 by 60 in.; fold it once, and sew it on 3 sides, so that you will have a sort of bag 12x60 in.; 20 inches from one end, and right in the center of the width, cut a place for an entrance, as shown in the cut, and hem or bind it.

The upper figure shows the piece extended at full length; the lower one, as it is used in the hive. AA are the end of the Simplicity hive; BB, the bottom board, pushed back so as to give $\frac{3}{8}$ in. space for the entrance, and CC are the ends of the burlap which goes under the frames, around between the corners and rabbets, and over the tops of the frames. By this means we dispense with the enameled cloth entirely, in winter.

For over one year, I never found a sheet of the enameled cloth bitten through; but in the past week, I have found that they do sometimes get through, as they did through the duck. Had there been a chaff cushion over it, perhaps it would not have happened, but it looks very much as if nothing is going to hold them permanently, short of pieces of thin wood. The burlap is nice for wintering, and is not usually gnawed to much extent. The arrangement given above is the handiest I have ever used for feeding candy or grape-sugar.



HOW TO FIX A SIMPLICITY HIVE FOR WINTER.

In fixing the hives for winter, lift out all the combs and bees, and put in the burlap. Be sure that the hole in the burlap comes exactly at the entrance, and is free and open; then crowd in the division boards, and set in the combs containing the bees, being sure that no bees are between the cloth and the combs. When all the frames are in, bring the ends of the cloth over, as shown in the cut. If your combs have no holes in them, it may be well to put a stick, $\frac{1}{4}$ inch square, crosswise, just over the cluster. Now set on your upper story, and put in your chaff cushion or pillow, large enough to nearly fill it, crowd it down tight, and they are pretty well tucked up.

If the cushion gets damp from the moisture from the breath of the bees, raise the cover the thickness of a couple of matches; this will give ventilation but exclude rain and inquisitive bees.

Burlap is a coarse bagging, much like coffee sacking; I suppose that any other cheap, open, and porous cloth, something of the nature of straw, will answer. It is sometimes gnawed by the bees, but not often. We use two thicknesses simply to have it warmer, and to more nearly fill the space. It may be left in until honey comes next season.

It will probably save time to fix an empty hive ready for the bees; swap it for a hive, then fix that, and so on. The bottom boards need not be disturbed. To exclude frost, I would then bank up with sawdust, except at the entrance. Watch on pleasant days to see that no entrances are clogged.

We can furnish these sheets for 20c. each; if sent by mail, 30c. each.

WINTERING NUCLEI.

Please inform me of the best means, if any, of preserving a nucleus through the winter. It is in a 7x9 box and contains a valuable queen.

W. E. MOORE.

Hamlin, Kan., Oct. 17th, 1878.

Get them into as small a space as possible; that is, contract the space with chaff cushions, so that the bees cover all the combs, and fill all the space, just as we would a full swarm. If you have less than a quart of bees, it might be well to take them into a dry cellar during the severest weather. The greatest trouble you will have, will be to prevent swarming out in the spring. The queen and bees are always liable to swarm out, because they are dissatisfied with so small a company, and try to join themselves with some larger colony. Many have succeeded nicely in wintering one or two, but when they tried a larger number, the result has usually been vexation and loss.

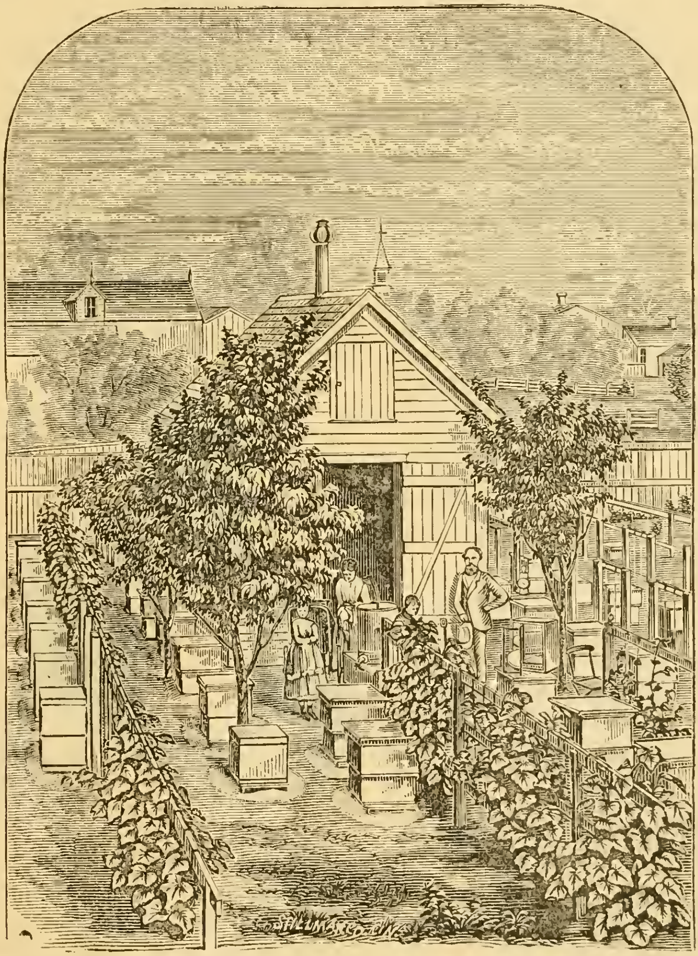
NOVICE'S APIARY.

YOU see it was a hot day when the photographer came down, and, worst of all, he directed us to stand facing him, and facing the sun over his shoulder. Mrs. R., Miss Maud, Master Ernest, and the Blue Eyed Baby, were all marshaled forth.

“But papa, we cannot look right at the sun, said the children.”

“Yes, you *must* look at it just a minute,” said papa.

Your humble servant, who stands over by the door (by the way, the engraver has given a remarkably good likeness of him), found no difficulty in looking at the sun, for he rather enjoys having it strike directly on his bald-head, even at noon day, in the summer time. Miss Maudie did very well, but Ernest held down his head, either because the sun troubled him, or because he was bashful. All were looking at the photograph man so intently, that “Blue Eyes” was forgotten until mamma discovered that she had pulled her little, dainty, white sun bonnet down over her eyes so she could not see at all, and then her frantic efforts to get it off came pretty near upsetting the whole party, right in “meetin’ time!” If she hadn't a right to view the whole proceedings, as well as the rest, I would like to know who had. The engraver has by some means left the baby, in her predicament, entirely out of sight, although her carriage is plainly visible. The honey extractor stands near by, the spade leans against the door at Novice's side, the spring scales that show how much honey comes in every day are at his back, a Simplicity hive turned on its side near by, the camp chair at a little distance, and all the surroundings that help to make it “our home” scattered about.



A VIEW OF A PART OF OUR OWN HEXAGONAL APIARY.

You can see how we fix the sawdust about the hives, how we keep down all the grass and weeds, and how the grape vine trellises are arranged, although the engraver forgot to show the opening clearly, in the trellises, by the side of the straight row of two story Simplicity hives. The R. R. track is hardly visible, although the extractor is on the car.

NEW COMBS VERSUS OLD FOR QUEEN REARING, AND CANDY FOR BEES.

THE queens ordered for myself and neighbors all came in good condition. Six of them have been successfully introduced; the last two we will try to introduce this day. I think your bottle cage and system of packing as near perfection as you can make it, without considerable walking around the stairway.

I notice in this No. of GLEANINGS, page 340, the problem of F. W. Cumings in regard to the color of queens from the same mother.

In June, 1877, I had some combs break down in an American hive, that were full of brood and eggs; and, the combs being hard to put into the old frames, I put them into the Gallup frames and made a nucleus. The combs did not fill the frames out in the upper corner, under the top bar, and the bees built new comb in the open space, and queen cells in the new comb, and also cells in the old comb. The difference in the time of hatching out was not more than 30 minutes. The one in the new comb was very light yellow, and the one in the old comb was almost black. The eggs were from a good Italian queen, rather dark colored. Being green in bee business, I let them both stay in the hive, and when I opened it again the yellow queen was gone. The dark one is very prolific, and that little nucleus is now one of my strongest swarms. Since then, I have paid some attention to this matter, and am now of the opinion that old, dark comb has something to do with the color of queens.

I have expected to hear something of the success of feeding candy in winter, but so far I have not seen it in print. I think that it did well for me last winter, but I know very little practically about bees, candy, or anything else in apiculture.

There is one thing, however, I know; I had to give the swarm to which I fed the candy more space in March, and the other 7 had all the room they needed. I made my candy of granulated sugar and 1-5 wheat flour. P. GRAHAM.

Johnstown, Pa., Oct. 14, 1878.

The idea has long been advanced that old combs give darker queens; if this is so, does it not indicate that color is an accidental quality, and rather an unimportant matter, of itself? The flour candy will incite brood rearing, without a doubt, and where one wishes to increase his number of stocks, or even the number of bees in his hives, it gives him, at any time, a control of the matter, that we never possessed before its discovery. If you look over back numbers, you will find many reports similar to your own.

* * *

ANOTHER BOY BEE-KEEPER.

I THOUGHT I would give you a short history of my experience in bee-keeping, as a boy apiarist, and then ask a few questions which I have not yet seen answered in GLEANINGS.

My father bought one colony last April, one year ago, for Italians, and paid $10 for it. He told me to take care of them, and follow the directions of Quinby, as I had just bought one of Quinby's books. I paid as good attention to them as I could under the circumstances, for, although they were in a movable frame hive, the combs were all in diamonds, by being made crosswise of the frames.

June 5th, they sent out a good swarm. I hived them, and they did well. In 14 days, they swarmed 18 times, sometimes going back without clustering, sometimes letting me put them in a nice new Langstroth hive; finally, they concluded to accept the situation, by giving out a second and third swarm. The last two did so little that I united them in Nov., and they were yet too small, but I found a man that was going to murder a colony, so I begged him to let me drive them, which I did; and, while the ground was frozen, I united them with the above named colony, then fed all winter, carrying them through nicely.

Father also purchased a colony in a box hive, at a sale in Nov. It had not one pound of honey, but he gave 40c. for it. The people laughed at him for paying 40c. for such an old box, as the bees were not worth one cent. He told me to try my luck on them, and if I could take them through the winter, he would believe something in "Beeology." I fed them about $1.25 worth of sugar syrup, and had the queen laying eggs at New Year.

They did well this season. I transferred the two colonies father purchased to frame hives, and he now has 11 colonies, one of which I made by dividing. They are all hybrids, as was the old one he purchased for Italians. We did not then know what full bloods were.

We have taken 200 lbs. of box honey this year, as we had no extractor, but will have one next year, if our bees live.

Last April, I purchased a colony of full blooded Italians of Valentine & Son. I now have three; one full blood and two hybrids, all in good condition for the winter.

Will a hybrid queen make pure Italians, if she has met a full blood Italian drone? If a hybrid queen produces bees some black, some one, some two, and some three banded, will the eggs that produce the 3 banded workers make full blooded queens, if fed with the royal jelly?

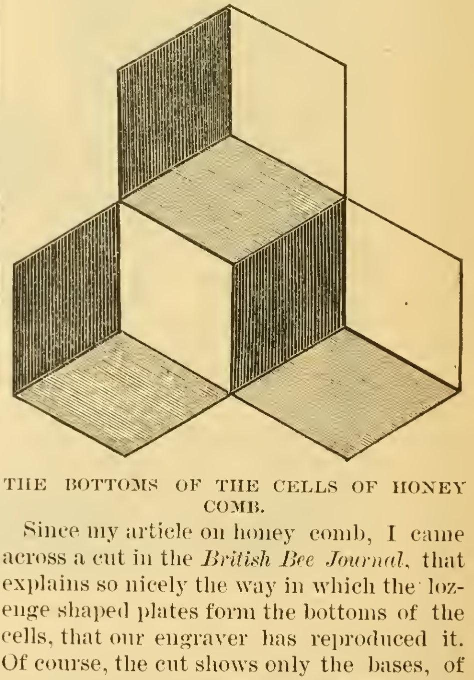
I should visit you the coming season if I had the means to take me there and back, and go to Sunday school with you. I like to read "Our Homes" in GLEANINGS. Would it not be well for us boys to have a part of a column of GLEANINGS, telling us what to do to our bees each month, or in other words telling us the work for each month, &c.

E. JAS. HINSHAW.

Lynn, Ind., Oct. 21, 1878.

Your perplexity, my young friend, comes from our calling a queen hybrid, because she produces hybrid bees. A queen whose father (if I may so express it) is not a pure Italian, can never produce pure bees, but if she is pure and has mated with a black drone, her drones will be pure, but not her workers. The egg from a hybrid queen that produces a 3 banded bee, would probably produce a queen apparently pure, but not in reality.

I have thought of a boy's department, but we are all boys, in *Bee Culture*, at least.



THE BOTTOMS OF THE CELLS OF HONEY COMB.

Since my article on honey comb, I came across a cut in the *British Bee Journal*, that explains so nicely the way in which the lozenge shaped plates form the bottoms of the cells, that our engraver has reproduced it. Of course, the cut shows only the bases, of the cells, and none of the side walls. Is it not pretty?

Our Homes.

Think not that I am come to send peace on earth; I come not to send peace, but a sword. Mathew, 10; 34.

I SUPPOSE our Lord gave utterance to the above words, like many others of his sayings, in accordance with the people and circumstances with which he was surrounded. The spirit of Christianity is generally supposed to bring peace and good will wherever it goes, and so it does eventually; but it *may* require a sword to bring about this same peace and good will.

On page 203, I mentioned that I was chosen on a committee, to suppress drunkenness in our streets, by law. It seemed an easy matter to promise to do this work, but when I took a second thought about it, and reflected that the ones I should cause to be arrested would, without doubt, meet me in jail, in the Bible class, I confess that I hung back, because I could not see my way clear to do mission work, and undertake prosecution at the same time. I prayed over it, earnestly, and pretty soon the way seemed opened. A prominent, and otherwise good citizen had for years been in the habit of appearing intoxicated on our streets, and many times had the boys in jail held him up, as one that nobody dared arrest, while they were taken up for the first offense. This man bought his whisky by the barrel, and boasted that it was nobody's business, so long as he in no way interfered with anybody else. I called at his house one Sabbath morning after the Bible class, and had a long and friendly talk with him, concluding by telling him that I should be obliged to have him arrested if he was any more seen in this condition on the streets. Although we had some pretty plain and strong talk, I left with permission to arrest him, for the next offense, and a promise, too, that he would harbor no malice if I did. I assure you, my friends, it took some earnest prayer to accomplish this, both *for* him, before I went, as well as *with* him. Months passed, and he did a great deal better; but slowly he got back into his old courses. I saw him several times intoxicated, but so dreaded to mar the harmony of our town that, notwithstanding my plain and decided warning, I let it pass.

About this time, an old gentleman, a partial stranger in our town, came into our prayer meeting, one Saturday afternoon. Something came up in regard to intemperance, and the damaging effects of the half dozen saloons in our place. The old gentleman rose up, and after some pretty strong exhortations, said that a half dozen earnest, God fearing, and praying men could close all the saloons in the place in less than 3 weeks. This statement was vehemently denied, and by the oldest and apparently strongest pillars of our church. Although our minister was apparently with him in his position, the old gentleman quietly gave way, when he saw how much opposition there was from others. The next day, he offered to go with me to the mission Sabbath school. When well on the way, the following came out, as near as I can tell it.

"Mr. B., why were you so positive yesterday in regard to the possibility of closing up our saloons?"

"Because I have seen just the same thing done."

"Why did you not tell us about it, then?"

"Well, I should have done so, but they were so vehement, they would not let me tell it."

"You will tell me?"

"Yes, certainly. It was in the town of D., in Conn., many years ago. We had been bothered by saloons, which were doing a thriving and increasing business, in spite of us, until we finally took it up in our prayer meeting, and told God we were ready to do anything, if he would only guide us, and show us our duty. Several volunteered, and a sum of money was pledged to make good any damage to property that resulted from undertaking a vigorous prosecution by law. I was chosen to do the work, and at it I went. I got a book, and put in it the name and date of every one who became intoxicated. I also collected all the evidence I could against the saloon keepers, until I had quite a book full. I then commenced work in a quiet way. If they beat me on one case, I took up another, until they began to think there was no end to them. One after another declared that nothing earthly could stand such a volley of charges, and when it came to a distinguished lawyer who had staggered about the streets with impunity, he, too, declared with an oath, that he supposed he might as well give in first as last, for old B——had got him tighter than——. In a few weeks, the saloons all broke up, and temperance and order prevailed."

"But surely, Mr. B., you were persecuted in some way?"

"Ye-e-e-es, they did not give up without a struggle. They sent off for the best lawyers they could get, and when that failed, they cut my harness in pieces, spoiled a buggy, and got hold of me and pounded me some. They once, in fact, ducked me in a pond, but I crawled out again."

"Did the committee pay you damages for your property?"

"Yes, they paid me for my buggy and harness."

"How about the pounding and ducking?"

"Oh, I didn't charge them nothin', for that."

I turned around in astonishment. There was no trace in the old gentleman who sat by my side, of any disposition to boast of his courage; in fact, I had to draw out of him, word by word, the account of his own sturdy determination, and undaunted courage. Would I dare to go on, if my property were damaged? Would I bear pounding and ducking for the sake of the community in which I lived? for *Christ's* sake? I confess, I felt rather ashamed when I thought of it.

A few days after, the offender I have spoken of was passing along the streets held up by one of his comrades, and when he started to go alone, he came so near running over a little girl, that I put away my scruples, and had him arrested and fined, with a severe rebuke, and reminder that for the next similar offense, he would go to jail without ceremony. Did I do right? He threatened me, of course, and finally in a talk afterward, told of being so short of money, that it was with difficulty he could raise the fine, and that his family were thereby deprived of the necessaries of life. He said I had always been held a peaceable man, that he had never known of my having a quarrel before in the world, and that I had certainly hurt myself in the opinion of all good people, by thus pouncing on a poor, hard working man. I plead with him, pointed out the effect of such an example on his own boys, until he finally shook hands and forgave it all, but warned me never to do so again; I took his hand, but earnestly assured him, I should fetch him to justice, for the very next offense. This was the first I ever had to do with the law, in my life.

That same afternoon, the mayor suggested to me, that another man was going from one saloon to another so much intoxicated that he apparently knew little of what he was doing. Soon, another individual called my attention to the same case, and then still another. Said I,

"My friends, I will have the man taken care of, but before trying law, I wish first to try the power of kind words."

I thought, but I did not say, that I would try a chapter in the Bible, and the most earnest prayer and entreaties I was master of. I prayed over the case, and other similar cases. Go to him, said the still small voice, when he is at home, and sober. I pondered over it, on my way to the mission Sabbath school.

During the school, the matter was uppermost in my mind, and, meditating that the best way to get rid of an unpleasant duty is to do it and have it done with, I turned my horse's head in the direction in which I supposed he lived. As I passed through the town of Abbeyville, it occurred to me that my horse should be watered, and I drove up to my friend Simon's saloon. Simon, since the promise he gave me in the brewery, has done some better, although I have been told that he has been drinking hard, at times, since then. He came out and took me by the hand as he always does, offered to water my horse, and showed himself a good, kind friend, as usual.

"Simon, where does Mr. B., live.? The man who sells fruit, grapes, etc.?"

"Mr. B.? Oh, he lives away up in Strongsville. You surely are not going there yet to night?"

"I was thinking of doing so; how far is it?"

"Why it is over 7 miles, and the sun is almost down now. You will have to take another day for it."

"I am afraid I shall", said I, as I felt the air was already getting frosty, and I had nothing in the shape of a buffalo robe. I turned my horse around to go home. "You will have a good hour to visit your mother", said a voice. "But", said another, "you had started on one of God's errands, and you will not be happy even with your mother, if you turn back, and become faint hearted." I pulled the other line, and told Jack to hurry up, saying to myself, "God's work first, and your own afterward." By the way, both Jack and the light new buggy seem to have been sent me, on purpose to do mission work, for, as yet, neither have cost me a cent of money. I forgot the chilly air, as I got in the right track, and sped along with that peace of mind, that "floweth as a river," when one is in the right way. Satan did not let me off so easily, however, for when I was within a mile or two of the place, and saw the fine residences that lined the roadsides, it began to seem a terrible task to approach one I did not know, and take him to task for his intemperate habits. I presume I harbored the feeling a little, for it soon began to appear as the most singular and unreasonable thing that mortal ever did; and, feeling sure I should meet with rebuff and be driven from his door as soon as my errand was made known, I actually studied for some excuse for turning Jack's head about, and going home to my own business. Alone in my buggy, in the still night, I prayed God to take the evil spirit away, but it only came the stronger. Most earnestly did I fight and struggle in prayer, for courage to do the work I had commenced, and I remember vividly, how I promised my Savior, that if he would bless this visit, as he had so many others before, I would try no more to doubt, nor to be influenced by these foolish doubts and fears. As I came to the house, I fairly importuned God to be with me, and to give wisdom as well as energy, for the work that lay before me. As I sprang out of the buggy, my missionary spirit returned, and I felt at home, though intensely anxious for the salvation of the man who turned the corner, just as I was about to rap at the door. There was light enough so that I could see the evidences of the work that drink had done about his home, in the state of the fences and gate, in the lack of paint, and dilapidation generally. In a moment, I was by his side.

"Mr. B., I have come to see you on a strange errand. After I have stated it, if you wish me to go away, I will go at once, without blaming you in the least, for I have come here to take a great liberty."

He bowed his head, but made no answer. I then went on. I told him of the boys in our town; of the example he was setting before them. He said he knew it all, and was glad I had come. That he had been thinking on that pleasant Sabbath afternoon, that if he continued thus, he would soon be past hope or help; that his property too, could not hold out long, against such wastefulness. He told me how, again and again, he had come to our town, thinking he would keep away from the saloons, and drink no more, how he had been drawn in and treated under one pretext or another, how they had wanted to buy his fruit, and had insisted on his coming in to see it weighed, how he had yielded, and come home in a state of insensibility, with his money all gone, and his hope and self respect with it.

"No one has ever talked with me before as you have, Mr. Root, and I am glad, very glad, that you came."

"Thank God, my friend, and not me. Shall we not go in and talk with your wife?"

"I think you had better not. Since my wasting my money and produce as I did last week, she does not feel very pleasant, and has but little confidence in me."

"By all means tell your wife, my friend, and get her to help you. Come! Shall we not go in?"

The man was crying, and I was not afraid any more; God was with me, and I had no fear of going forward where he seemed to lead. The poor wife was truly in no frame of mind to meet strangers. She had no desire to have her husband's shame spread abroad any farther. I learned that she had long ago been a member of the church near there, and I asked for a Bible. It was not furnished at first, but I felt that I must have it, and by and by, the little girl brought it. I read a part of Luke, 6th chapter, and then sang out of Gospel Hymns, "Only Trust Him." After a short prayer we got acquainted, and I told them of Christ's work in my own home. I worked with all the energy God has given me, and in less than two hours time after my visit there, they almost insisted that I should stay over night. My Savior kept me warm that cool night, and I was too happy to feel the frosty air or catch cold.

It is not no unusual thing for such men to make promises which they never keep; but this man came promptly on the day he had named, and asked me what he should do to show his sincerity of purpose, and to help reform the young men of our town. Feeling the need of counsel, I took him to the minister who had been the means of my conversion, and we had a good talk. It seems the saloon keepers had not only got his fruit of him when he was so drunk that he did not know that they never paid him, but they even borrowed his money; he never knew where it went to, until a bystander informed him of it after he became sober. After he had knelt in prayer, he expressed a determination to prosecute by law, every saloon keeper who had sold him drink while thus intoxicated. I confess that I had a little misgiving about advising a newly converted man to take almost his first step, by going to law. The minister, however, thought it was the very best symptom of a sound and thorough conversion from his former ways. We went with him to the court house, where the grand jury happened to be in full session, and he told his story before them. It implicated every saloon keeper in our town, and, although they sent abroad for the very best counsel that could be secured, for once in the world, everything seemed to be against them. None of the usual twists and subterfuges seemed to avail a particle, and in a panic of alarm, the two leading saloon keepers, who had baffled every effort for years, sold out in haste, and left the town. Simon's mother, who, it was suspected, had sold him drugged liquor, locked up her shop and disappeared, no one knew where. The saloon keeper across from the factory, was heavily fined, and was, I was told, most emphatic in his denunciations of myself and the minister, for having caused innocent people so much trouble and expense.

At just about this time, I was one day superintending the putting up of a wire for a telephone, from my old store to the factory. It was to be attached to the buildings, and the saloon keeper's barn was just in the line. I looked at other buildings, with a view of going around him, feeling sure he would not give me the "right of way." "Why should you hesitate to ask him," said a better voice. "Have you wronged him in any way that should make you feel guilty?" I knew I had not, and so I walked boldly in and made my wishes known to his wife, who said he was at the court house trying to save his property from the "temperance ring." I sat as still as I could, and listened quietly, while she gave me a "piece of her mind." When through, I quietly assured her, that I belonged to no ring unless it was one in which God Almighty had a leading hand, and that, instead of its being my work, it was the work of the hand of God, in just the way I had told them, in my former visits, that it would come, if they persisted in selling beer. When the husband came home, I had a talk with him, and the wire now rests securely on the top of their barn and I am trying to get a dozen boarders for them among my factory hands, that they may be able to pay their rent, without selling beer at all. Although the lawsuits cost them $85.00, they give me a pleasant recognition, every time I pass their house.

Simon stopped me in the streets, at about this time, and informed me that my Abbeyville Sabbath School would be closed up, if I did not stop advising people to take the law on saloon keepers. My going and talking to them was all right, and it did them good; I had done him a great deal of good, by my pleasant talks and exhortations, but if I wanted to bring peace and good will among men, I had no business with the law in my hands. He was trustee of the school house and, unless I withdrew at once, from my offensive and quarrelsome position, it would be locked up forthwith. As the above illustrates exactly the position of some of the friends who have criticised my work in Humbugs and Swindles, as I see it, I would call particular attention to the matter. Many times in life, the very shortest road to peace and good will, is not only through law, but as in my opening text, by the use of the sword itself. Through the influence of my mission work, Simon's mother had been obliged to flee the community as an outlaw. Was the work mine? By no means. When you put a quantity of fuel under the boiler of a steam engine, and stir up a rousing fire, no immediate effect is seen in the machinery, and an inexperienced person might not see the connection between the firing up and the vast amount of work that would soon be performed, through the agency of that little heap of fuel. Of late, this has seemed to be the result of fervent and heartfelt prayer. After pleading and wrestling with God, as I did that night alone in my buggy, I have come to feel, that very soon, somewhere, a powerful answer is coming, and work is going to be done. As I sat still afterward no immediate answer was perceptible, but I thought before I entered the yard that I was going to be received pleasantly, and hoped, just a little, that the man might in time be converted. I had no thought that he would then, that night, give his heart to God, and much less, that his conversion would have such an effect on the saloons and morals of Medina. The lawyer for the defence did, it is true, say I went off 10 miles that Sunday night, with the express idea of making trouble, but the trouble that came, was purely of God's making, not mine. I am not at all sharp and far seeing, but I have faith in God, and faith in prayer. He can, and I hope does, look ahead, and plan and direct my work for me. In looking back at it, it seems to be something as it was with David, when he picked the pebble out of the brook. He had faith, and threw the stone as hard as his feeble strength would permit. God guided it, and gave it the additional force needed to do the work.

There is another class of my readers who believe in non-resistance; these good friends will say there was no law about the work, so far as I was concerned. I simply went to the man and talked kindly with him. I have no objection to that way of taking it, and I most firmly believe that in a great part of the cases, love and kindness would do the work, with nothing more.

Was the Sabbath school shut up? Simon and his father went there, and told the children they had better go home, as I was not coming, but unfortunately for their case, the children's faith in me, even if I was absent, was greater than in him who was present. I persuaded him to come in and sit in a class, and when the school was over, he went out and got one of the largest apples I ever saw, and told me to give it to my wife with his respects. The Sabbath school is God's work, you see, and it would be pretty hard for a human being to break it up, by any course, while the school and their teacher had faith in his strong arm. We may be eventually turned out of the school house, but if we are, we shall, most assuredly, pitch our tent a step nearer to the saloon and brewery.

Drunkenness is not yet stopped on our streets, by any means. Many times, I have had hard work to find the names and residences of offending parties. Day before yesterday, a fine looking young man was staggering toward me. As I looked at him pityingly, he came up and took me by the arm. I talked with him kindly and then asked his name. His voice was so thick, I could scarcely make it out; I took out my pencil, and while his arm was around me lovingly, I wrote his name and address.

"Why yer a goo' writer, Root, ain't yer?"

"I ought to be, for I write a great deal."

"Wha' yer write my name fer?"

"Oh, I am coming to make you a visit some day."

"Zas so?"

"Yes; I like to know all the boys."

"Why yer a goo' feller, ain't yer, Root?"

"I try to be."

I added mentally, may God help me to be a good friend to you, my poor brother. Do I want to put this boy in jail? May God forbid. But if nothing else can be done, if pleading and entreaties amount to nothing, I feel that I shall be compelled to take some other course, to put a stop to such examples in our streets, as those I have given. Use gentle means at first, and be patient and long suffering, but when the day of probation is passed, may God give us the firmness and decision that is needed to rescue our land from the toils of Satan, and when nothing but the sword will deter wicked men, may he give us grace to grasp that sword unflinchingly.

QUEEN CELLS TO ORDER.

AFTER reading your article in Oct. No., my thoughts ran thus: take a piece of wood, similar to the top bar of a frame, a half inch or more in thickness, and cut a notch in each end so it will fit down on the rabbets even with the top bar of the frames; take a bit similar to a countersink, made for the purpose, and bore holes, of proper depth and distance apart, in the bottom of the stick; then take small pieces of thick comb fdn. and shape with the fingers and press into the holes and, while warm, take a queen cell stamp, and with one blow with the hammer, the cell is ready for the larva.

I want a queen cell stamp and bit for making the holes. Please get them up for me, unless something better is devised.

You will probably have thought the matter all over before receiving this, but I send it with the idea that there is a bare possibility of helping the matter along. P. UNDERWOOD.

North Lawrence, Kansas, Oct. 7, 1878.

I am inclined to think both your plan and friend Scovell's will work during the swarming season, but it may be rather difficult to get them to succeed yet this fall. We are trying hard.

After reading "queen cells to order," I turned some knobs and nailed them to a piece of wood, then wet them in water and dipped them in melted wax. I got nice "acorns" in this way, and fastened them on the under side of an empty brood frame, by warming the base over a lamp. I do not think it will amount to anything, as about 4-5 of them are either torn down or have the larvæ removed from them. In transferring the larvæ, I use the long tube of a glass atomizer. Put the pointed end in the cell and suck gently, and you will draw the larvæ up in the tube; now remove the tube to the cell you wish to graft and blow gently, which will deposit the larva. With this you can remove the milky food, which you can not do with a stick. I think a tube could be made expressly for this; it should be longer than the one I have, and should be curved at the point. L. HEINE.

Smithville South, N. Y., Oct. 21st, 1878.

Well, my friend, I am glad to hear you have succeeded, if only with a few of them; it is better than we have done. I fear your tube injures the larvæ. Suppose we take the whole bottom out of the cell, and insert it wax and all.

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To anyone who sends $1 for GLEANINGS one year, *before Jan. 1st, '79*, we will send, as a premium, either of the 25c A B C books, or any one of the 25c premiums. The premium to be sent on receipt of the money; but the sender must state that a premium is wanted, and the *kind* of premium, at the time of writing, or none will be sent him. See table of premiums. The purpose of this is to avoid the necessity of tearing down our mailing list, at the end of the year.

Heads of Grain,

From Different Fields.

MUCH has been said about queens that occasionally produce very dark daughters. As most, if not all, of the queens we import from Italy occasionally do this, I can not think it any proof of impurity. Where the majority of them are dark, the queen is certainly not a desirable one to rear queens from for sale, but I can not discover that the bees are in any way inferior as honey gatherers.

DARK QUEENS FROM A PURE ITALIAN MOTHER.

Two years ago this coming fall, I purchased, as a tested queen, a young queen raised from larvæ obtained from you. Last summer, I raised queens for my small apiary. Most of the queens were like their mother, and most of them had well marked bees; but two were as black as natives. I killed them both. Now this year, the first queen I raised was black. I kept her awhile and half of her bees were black. I raised some queens from her not quite as dark as she. I have raised two queens since, from my old queen, under similar circumstances, and they are both as yellow, nice queens as any I had last year. Would you think a queen that breeds such black queens, occasionally, pure and purely fertilized? That's the question I would like to ask you.

The larvæ you sent before came in good order, and the bees did their part well, but I made some bad work transferring the cells, so I only got two queens where I expected four.

You, sometimes, in GLEANINGS, call a pure queen that has met a black or mixed drone a hybrid. That is not right, as I understand it, and as you occupy the position of teacher to a good many *real* novices, you should talk straight. C. M. WHITNEY.

New Milford, O., Aug. 19, 1878.

A queen that produces one or two banded bees has been so long called hybrid, by general consent, that I do not know how we should go about to change it, even if it were decided to be an error. She may be ever so nice and yellow, yet, if her bees are hybrid, she is so pronounced and sold.

FLORIDA.

Find enclosed $1.00 and postal card for 15 cts., for which send me a *big smoker*. I lost mine in the woods.

Bees are doing well. I have 50 good stocks, and am Italianizing them now. Our best bloom, the cabbage palmetto, was most of it washed out by every day showers, while it was in blossom.

Fdn. is a big thing. I am using a hive like the Simplicity, except that I use flat top and bottom boards, both alike.

Success to the new shop. Be sure to put a stairway up in the center of it, with a clear way around it.

Isn't there any such thing as our getting a chance to send queens again, by mail? The late order cuts me off in the cold, as I am 125 miles from an express office. R. H. MCINTYRE.

Daytona, Fla., Sept. 22, 1878.

Yes, sir; one of our Yankee friends has invented a box that the P. M. G. says will do, and by another season, we think we shall be all right again.

HOME-MADE BUZZ-SAWS, MAKING HIVES BY HAND, ETC.

A year ago, we—wife and I—saw your advertisement in *American Agriculturist*, obtained A B C, and subscribed for GLEANINGS, and read them. We afterwards procured a hive, smoker, etc., of you, all of which seem to us to be "tip-top." We made nine two-story hives, with frames and sections to suit, transferred four swarms of black bees from old box hives, and in due time divided them, making nine swarms.

We Italianized 5 of them, got 270 section boxes full of nice honey, and a number part full for a start for next year. Thanks to you, through A B C and GLEANINGS.

Can't you give us directions in GLEANINGS, how to make a saw frame and table, what kind of mandrel to use, where to procure the other necessary irons, and how to put all together complete, to run by foot power and otherwise, so as to be equal, or nearly so, to the Barnes saw, but which will not cost so *much in greenbacks?* J. SYKES WILSON.

Sterling, Ill., Oct. 6, 1878.

P. S.—I found no trouble in making the hives by hand, with your help in GLEANINGS. J. S. W.

I think you will find just the instruction you ask for in this number. I am very glad to hear that you succeeded in making hives by hand, from the directions in the A B C book.

QUEENS NOT LAYING IN THE FALL.

I want another black queen. I can not find the last queen I introduced, and there is no brood in the hive. I guess she 's "gone to another and a better world;" if she hasn't, she had better go, for she is good for nothing here, and I want another to give to her colony.

The express charges are 40c. on every one we have sent for this summer. I think that's a "swingle." The last bees I got from you drank water as eagerly as they ate honey, when I let them out. The bottle was not full, and the mouth was tipped up so it did them no good.

Please send a good body guard with her, for our nights are frosty now. MARY SIMONS.

Brocton, N. Y., Sept. 29, 1878.

Now, Mary, you must not be too sure your queen is good for nothing, simply because you cannot find any eggs or brood; for queens almost always cease laying in Oct., unless the colony is fed regularly, to keep up brood rearing. I used to worry when my queens became small and stopped laying in the fall, but I learned afterward that they came through the winter all right, and that it really did no harm to let them rest awhile.

The bottles usually get tipped around enough, on their journey, so that they get water at least once in a day or two, and this seems to suffice. Where a queen passes over two express lines, the charges are always 40c. A half dozen could be sent as cheaply as one.

Bees have done well here since July 20th, up to Sept. 25th. I commenced last spring with 17 swarms; have sold 4 swarms, and now have 31 in good condition, and 4 nuclei with extra queens for my neighbors.

I have Italianized 24 swarms. The yellow fellows forbid the entrance of moth or miller, and protect the hive completely. I shall receive from 14 colonies, some over 600 lbs. of honey; about half comb, at 20c.; ext'd, 12½. One hive gave me 132 lbs.; 84 ext'd and 48 comb.

I started 3 years ago with 1 swarm; they now stand me in, clear profit, $162 in the 3 years.
B. N. BENNETT.

Springport, Mich., Oct. 4, 1878.

June 1, 1878, I had forty-three stocks of bees. I have, at present date, eighty in good condition for winter. The result of my season's work is as follows:

Box honey 3,150 lbs.
Ext'd " 1,000 "

Total 4,150 "

The average yield is about 96½ lbs. per stock. I did not keep any record of best stocks. White clover did not yield much honey in this section this year, but basswood yielded very abundantly, and I had all I could do to provide box room while it lasted. N. F. CASE.

Glensdale, N. Y., Oct. 3, 1878.

BEES DYING SUDDENLY WHILE BEING EXAMINED.

I suppose you do sometimes get out of patience with us A B C fellows, but here is something I wish you to explain. I had occasion to-day to open a swarm of Italians; they were very docile, but I noticed, on lifting out a comb, that they *all* elevated their posteriors and thrust out their stingers. I could even smell the fumes of poison while bending over the hive, but nevertheless they all stuck to their comb and none flew off. I then took them into the house to show some friends (all this being done without smoke), when I noticed several fall to the floor. I picked them up, thinking perhaps, as it was rather cool, they were partly chilled; but I noticed, in nearly every case, they would draw up and act as if they had been stung, and that some of those that fell off were dead. I then returned the comb to the hive and stood to watch them for some little time, when they began to bring out dead bees; I should think ten or a dozen in all. The only cause I could give for this strange occurrence was that they unintentionally stung each other from one comb to the other, their elevated position being favorable for penetrating beneath the folds of the abdomen of the ones on the opposite comb. Was I right? and, if so, what is the remedy?

MOTHER AND STEP-MOTHER IN THE HIVE AT THE SAME TIME.

One more question: I Italianized a colony of blacks this summer, and took away the black queen two or three days before I was to introduce her majesty, the yellow queen. They, of course, began queen cells, but I left them for the old lady to regulate. I looked through the hive quite often, but saw nothing uncommon, until after the colony was partly converted into Italians, I found one day an inferior little black queen, as well as the Italian. What do you think of those young Italians paying homage to their own mother and a step-mother also.

M. A. GILL.

Viola, Wis., Oct. 12, 1878.

I think I have seen bees die, in the way you mention, after the honey yield had suddenly ceased, and they were cross and touchy. I know they look as if they had been stung, but as it takes considerable force for a bee to withdraw his sting, I never could quite understand it. Is it not possible that they poisoned their comrades without stinging them? It is very often the case that a young queen is reared from cells started before a queen was introduced. On this account, I would not take away the old queen, until the new one is ready to be put in, caged of course. There is great danger of your Italian queen being killed, as soon as the young one is ready to lay.

A NEW DISEASE OF BEES.

I have got one swarm of Italian bees, and there is something the matter with them; they are dying off quite fast. In warm days, they will come out of the hive, as if in a great hurry to go to the field for honey, crawl fast three or four inches from the hive, then stop all at once, commence to shake or flutter, then start off and drag their hind parts and legs, as if they had lost the use of them; they go from one to two feet from the hive, sometimes less, turn partly on their sides, remain stupid for one or two hours, and then die. There is brood in the hive from the egg to the hatching bee. There is nothing said in GLEANINGS about how bees act when they have the foul brood. Please answer in the next number and oblige one of your readers.

In Oct. No., I noticed O. Kleinow's success in early swarming. I wintered 5 swarms through, packed in chaff, all in one row, in a bin in the corn house. On the 24th of April, two swarms came out; 30th, one; May 4th, one; 10th, one; 20th, one; they increased to 13 in number. I kept one from swarming all summer. I got 320 lbs. of honey in all. How is that "for high" in a corn crib, packed in chaff all summer, and a new beginner at that? D. BUTTON.

Bloomingdale, Mich., Oct. 13, 1878.

I think the disease is the same, or nearly the same, as that described in A B C, under the head of diseases of bees, toward the close of the article. The only remedy I can suggest is to remove the queen, for I have good reason to think this a hereditary ailment. Increasing 5 swarms to 13, and getting 320 lbs. of honey, I should call pretty well for anybody. Foul brood does not affect the *mature* bees.

Enclosed please find $1.00, for which send me one of your smokers; I mean a GLEANINGS smoker. A neighbor having borrowed ours concluded to keep it, saying we could send for another.

MRS. EBERMAN.

Merrimac Point, Ills., Oct. 16th, 1878.

HOW TO REMOVE PROPOLIS.

You mention several modes of taking propolis from the hands; none of which we find as practical as a small piece of pumice stone, kept on the wash-stand, with which, after washing, the propolis may be rubbed off as easily as fresh paint.

Cleveland, O., Oct. 10, 1878. STAIR & KENDAL.

Our folks always do keep a piece of pumice stone near the wash basin, and I formerly used it to get off the propolis, but when I am in a hurry, and I can scarcely remember the time when I was not, I find a little lard much the most expeditious.

WOODEN SEPARATORS, SCATTERING THE HIVES IN DIFFERENT LOCALITIES.

Yours of Oct. 9th is at hand. We have sent you to-day one of our broad frames with sections and separator. This frame is taken out of a case which has been used; the filled sections, of course, were taken out and replaced. Can you beat our basswood sections? We think they are full as neat if not neater than pine sections. We have also used basswood for separators, and found that it will do just as well as pine.

Now, we will give you a statement of what our bees have done this season. We have to mention that they are divided into 5 apiaries; two of them are located in Milo, Yates Co., and three in our own town. The two first mentioned have done best. One apiary of 12 swarms averaged 80 lbs. of comb honey per colony, and we increased them to 18, all in good condition now. Another of 8 swarms averaged 70 lbs. per colony, and increased to 10 swarms. One apiary in our town of 10 hives averaged 50 lbs. of comb honey, and we increased them to 13. Another apiary of 8 swarms averaged nearly 50 lbs. per colony, and no increase. Our home apiary of 50 swarms did the poorest of all, averaging only 25 lbs. per colony, and increased to 52 swarms. As our bees did so much better in Yates Co., we have concluded to move part of our home apiary into said Co., next spring. All our bees seem to be in good condition for winter, and we hope to winter them all. GREINER BRO'S.

Naples, N. Y., Oct. 14th, 1878.

The basswood sections are certainly beautiful, and if we could get wood uniformly white like that you send, I should consider it even nicer than pine. Your wood separator has certainly answered, for I cannot discover that any combs have ever been attached to it, but is not the thickness (⅜ of an inch) rather objectionable on account of the increased room it occupies? The facts you furnish in regard to scattering the bees out in the country, are quite valuable, although some careful experiments will be needed to determine whether it was the better locality, or having a smaller number in a place, or both, which caused some to do better than others. One more item pleases me; I noticed that your package had a neat stamp on it, of your name, residence, and business, and not only was your letter, but also each section box in the package, stamped in the same way. These rubber stamps are a great blessing to those who receive large quantities of mail matter, if to no others.

GETTING THE BEES OUT OF SURPLUS BOXES.

I should be very much obliged to you, if you would tell your readers what is the best way to get rid of the bees contained in surplus honey boxes when they are taken off. They cling so pertinaciously to the combs in the boxes, that I find it very difficult to drive them out and have them return to the hive. J. BALSIGER.

Highland, Ills., Oct. 7th, 1878.

It is a troublesome operation to get bees out of boxes, the best way you can fix it, and this is one reason why the sections are so much preferable. In warm weather, when the bees are getting honey, you can generally succeed by setting the box in front of the hive over night. Later in the season, you will often find them clear out of the boxes, after a frosty night, and they can then be removed without trouble. Where you have many boxes to come off during warm weather, you can set the whole in a large box, and throw a cloth over it. Fasten the cloth so that the wind can not get it off, and let robbers in. When the bees have collected on the under side of the cloth, turn it over and let them fly to their hives. After a half hour, turn it again, until all are out. If the boxes have large openings at both top and bottom, you can often drive out every bee with smoke, before taking it from the hive.

I do not get out of patience with the A B C class, near as often as I do with myself, friend G.; keep on with your questions.

ARRESTING SWARMS, HUNTING BEES, ROAST CHICKEN AND SWEET POTATOES FOR BEES, ETC.

I have a suggestion to make in regard to runaway swarms; if you find you can not arrest them by any other means, load a gun with powder only, and fire among them, and be assured they will stop at once, and settle.

In hunting bees in the woods, where you have lined a swarm and are satisfied that you are not far off from the tree, catch a bee and sprinkle some *flower of sulphur* on him, and turn him loose. He is off at once, and as soon as he enters the tree, he stirs up such a fuss with his sulphurous odor that the bees roll out in a great hurry, and set up a roaring, like a swarm in flight, which you will hear.

Feeding bees a *roast chicken* is no myth in this part of our "moral vineyard." In the winter of '71-2, I got possession of a hive late in the fall, without supplies, and I fed them till spring, with *roast chicken* and *baked sweet potatoes*.

I am more than pleased with what I have learned in your A B C and GLEANINGS, and deeply regret that I did not hear of you sooner.

DR. D. E. RUFF.

Pattonville, Texas, Oct. 16th, '78.

Firing off a gun to bring down a swarm is an old idea; I presume the bees are expected to consider it a premonition of a thunder storm, and therefore make haste to alight. I shall try the sulphur; will others do the same? If it succeeds we will embody it in the A B C. When bees are in need of pollen, as they often are early in the spring, I presume they would use the baked sweet potatoes on account of the starch they contain.

SECTIONS IN THE HOUSE APIARY.

How do you set (or hang) section boxes over the frames in the house apiary?

Where colonies don't seem to understand what grape-sugar is for, some white cane sugar added to it will cause them to eat it. Now, can we, in any way, mix the candy from cane sugar with grape-sugar in the frames?

What is the size of the building paper you used in the house apiary, and what does it cost?

W. B. CORBETT.

Pleasant Ridge, N. C., Oct. 10, 1878.

The first frame of sections, put on when honey just commences coming in, is placed at the side, just back of the glass division board. When a set is to be placed on top also, the frames of sections are supported by strips ¼ inch thick, at each end. These strips close all openings, and hold the frames just as well as if they hung by the projecting top bars, only that when first put on, they are somewhat liable to get tipped over. After a little gum has been put on them by the bees, they hold all right. When first put on, they may be held up against the wall, by a comb guide tacked from the first frame to the last one. Comb guides or similar strips must also be tacked over the openings between the separators on the outside frame. Our house apiary has again given us more surplus honey than the outside hives, and is better stocked with honey for winter. The objection is that no one likes to work with bees in it, so well as with the out door hives.

Cane sugar mixed with grape-sugar makes a hard wax; we do not like it. Our building paper was about a yard wide, and cost 3c. per lb.

Enclosed please find one dollar, to pay for my next year's GLEANINGS. If all your 4,000 subscribers would send in their money now, it would help you considerably in what you mention in "Our Homes." I have been building, and have financial difficulties, too, (on a small scale), or I should order an imported queen yet this fall. Our locality is not the best for honey, but very good for queen rearing, as our farm is situated on a point in lake Erie. We wintered 15 colonies, increased to 40, extracted about 600 lbs. of honey, sold 63 queens, and three full swarms. Farm work hindered me from giving my bees proper attention. ILA MICHENER.

Low Banks, Can., Oct. 11th, 1878.

Many thanks, my good friend. The idea did not occur to me of trespassing on your kind generosity in that way; I only wished to illustrate how God answers prayer. I am glad to know that your apiary is prospering.

ENTRANCES IN WINTER, ETC.

I have not seen anything in GLEANINGS about winter passages through the combs. Some of the A B C class would like to hear from you on that subject. Also how large an entrance should a swarm that will cover 5 or 6 combs have for winter?

I would like the chaff hive better, if the cover were turned ¼ around so that the gables would be front and rear. E. T. HOBSON.

Damascoville, O., Oct. 16, 1878.

From what experience I have had, I do not think the winter passages at all important. I would have the entrance so small that only two or three bees could come out at once, in winter—say ½ by ⅜ inch. See "ENTRANCES," in A B C. The cover to the chaff hive can be made in the way you suggest, without any extra charge.

I am sorry to say that your honey is too high for me to buy for sale here. We sell comb honey at 15c., and the extracted at 12½c.

Some say that queens cannot sting; I say they can, for I had one that stung me in the finger, and left the stinger but not the socket. I returned her to the hive for 2 days and then killed her. She was a laying queen. F. MYERS.

St. Thomas, Pa., Oct. 18, 1878.

Glad to hear you have honey so cheap. Did she not lay any more after stinging? Why did you kill her? We have had one such report before, and it was said the queen kept on laying, after she had lost her sting.

As the season has just closed, I will send you my report.

In the fall of 1877, I had 6 colonies and wintered them packed in straw. I lost but one, which was robbed in the spring.

I bought 5 more in the spring, and so began the season with 10 colonies, 5 very weak.

I now have 20, 1 of which is queenless; and have taken 100 lbs. of comb, and 1,100 lbs. of extracted honey, with possibly 100 lbs. to take off yet.

Old bee-fogies around here made a good deal of sport over my "fixin's," as they called my Simplicities and extractor; but I've got the "bulge" on them now.

One man who had 13 old stocks, and did not think my hives of any account, has got 200 lbs. of honey in old boxes, weighing from 10 to 50 lbs. apiece. He has changed his mind on the hive question, and thinks he will get some frame hives this winter.

Please find enclosed 50c. for a hybrid queen (or a black, if you have no hybrid). I had as soon have it as the $1 ones. I've had 12 queens sent me in all—5 tested, the rest $1 ones—and the whole lot, with 1 exception, were hybrids. So I had just as soon buy hybrids and done with it. B. F. PRATT.

Dixon, Ill., Sept. 15th, 1878.

Why, my friend, you have fared badly in your purchases of queens. If I paid for tested queens and got hybrids, I think I should, at least, want *something* paid back.

FERTILIZATION OF QUEENS.

This summer, while I was working among my bees, I was standing on the lower side of my bee-yard, when I noticed a queen rise from a hive that was above me, and start south. She had gone but about 3 rods when I noticed a drone in pursuit of her. As they came in contact with one another, they fell to the ground; and, as they fell, they went between me and the hill, so that I could not see them after they were below the line of blue sky, and I could not find them on the ground. They were not above 30 ft. from the ground at any time.

JAS. EVANS.

Ketchumville, N. Y.

Thanks: this and other like instances seem to settle the fact, that the meeting does not always take place very high up from the ground.

The queen mentioned in the following was first sent to a wrong address, and by the time she was re-shipped to the right place, she had been some days on the way. The vial of water was what saved her.

Your queen came to hand yesterday evening, alive and that was all. The vial was empty, but there was "right smart" of candy, hard and dry. I fed them with honey and water mixed, and they got very merry on it. Five or six of the worker bees were dead when they came to hand, and two more died afterward.

Good bye, my friend. If you can't read this, guess at it. Are you satisfied? FREDERICK MEYERS.

Thomas, Pa., Oct. 9, 1878.

P. S.—Where can I get good extracted honey the cheapest? For what price could it be sent to me, freight paid, for cash down? I have not got enough for my customers, since fruit is scarce here. Give me the price of comb honey also. F. M.

I am quite satisfied, friend M., and I think that some of our readers near you can supply you with all the honey you want, at a low price; it is so plenty this year.

BEES DESERTING THEIR HIVE.

As you answer most people's questions in regard to apiculture, I would like your opinion in regard to bees leaving their hives and forcing themselves into the hive of another stock. Yesterday, March 8th, at noon, I observed that one of my swarms appeared to be about all out in the air, and I supposed they were out for an "airing," as the weather was very warm, and has been for some days past. I noticed they were gathering around one of my common box hives, and thought they belonged there, but had not the time to watch them long. I did not see them again until about 5 o'clock, when I saw a queen at the entrance trying to get in, and large numbers of bees lying about the hive dead and dying. I began to think something was wrong, and soon found the hive from which they must have come. It is a movable-comb hive, packed in chaff, and, on examination, showed everything in good condition; brood, honey, and combs appeared to be all right so far as I could see. It is a mystery to me. Why should they leave? FRANK GROSS.

Rockford, Mich., March 7, 1878.

Although I have always, or nearly always, after making an examination, found some reason for such absconding, it may be that I should not in your case. Perhaps the bees left when they were well off, and nothing was the matter. If they were packed in chaff, in a small close brood nest, had honey, brood, and clean combs and *plenty of bees*, I guess I shall have to give it up.

MOVING BEES SHORT DISTANCES, TRANSFERRING, ETC.

I have got several cards from men that are taking GLEANINGS, wanting to know the size of my hives, and other things. I make my hives 19 by 12 inches in the clear, by 12 inches deep; with 13 frames crosswise.

If you want to move your bees a short distance, do it early in the morning; shut them up till 12 o'clock, then spread something red over the gum and let your bees out, and you will not lose one.

I transferred 152 swarms of bees last winter and spring, and all have done well. I turn the old gum on the head, put a cap on the mouth, then, with a hammer, strike lightly on the gum; the bees will soon run up into the cap; then set the cap, with the bees in it, where the old stand stood, transfer the combs into frames, and, when done, hive your bees by shaking a few out at a time. The best time to transfer bees is in the fall or winter, when the comb is hard.

I have been working with bees for 40 odd years, and have always been a subscriber for some bee-journal. I take GLEANINGS now.

I am a Kentuckian, and have just come to Texas. This is a fine place for bees. I started last spring with 18 black stands, bought one Italian queen, and now I have 78 stands, and have sold 7 Italian swarms, making 85. Queens I sell at $4. Test my plan and, if it is good, put it in GLEANINGS.

The feeder you sent me came all right.

R. DEVENPORT.

Richland Spring, Texas, Sept. 29, 1878.

Your hive is very near the dimensions of the L. and Simplicity, my friend, but I think it would be a misfortune to beginners to adopt it, for the time is fast coming when bees in an odd sized hive will have to be sold at a lower price than if in the regular size. You can have the frames run crosswise in the Simplicity hive, if you wish, as explained last month.

Your plan of transferring is all right, but does it not take too much time to drum the bees out? I often transfer a colony in the time usually needed to drum them off the combs. Your plan for moving bees short distances will work sometimes, and again it will not.

The Italian bee is like Saul of Tarsus, head and shoulders above all the rest. They are gathering pollen, while very few of the blacks gather any. The blacks are great rogues, and rob and fight, while the Italians are attending to their own business in a legitimate way.

Ask your correspondents if they ever knew of foul brood when plenty of salt water was furnished. I am inclined to think it a preventive.

M. L. WILLIAMS.

Vanceburg, Ky., Sept. 18th, 1878.

BLACK BEES ON RED CLOVER.

Your correspondent of Scott county, Va., says that his bees (the black breed) collected vast quantities of honey, this season, from red clover. My experience is that our common black bees never feed on the blooms of red clover. How is the fact?

J. M. CROCKETT.

Pattonville, Texas, Sept. 25, 1878.

I think the fact is that he has seen black bees on the red clover in his locality, and you have not seen them on it in your locality; Eh? I have, several seasons, seen black bees on red clover to some extent here, but it is not near as common as to see the Italians on it.

RATES FOR ADVERTISING.

I think your rates for advertising are pretty well up. I must say the *A. B. J.* is a better medium and gives lower prices. You have always advised bee-keepers to economize and patronize only those who sell their wares at bottom rates. How can you make this advice square with your adv. rates?

J. H. MARTIN.

Hartford, N. Y., Sept. 21, 1878.

That is right, friend M., speak out plain. I am very glad to hear—at least, I keep trying to be—that the *A. B. J.* is a better medium, and at lower rates, for I *am* glad to see others prosper, even if they are in the same business as myself. You are right, I do believe in nice goods at low prices, and in having everything reasonable. I had based my plans on having 10c. per line for every 1,000 subscribers, and on having only first class, reliable advertisements, even though there were but few of them. With our present facilities, we can certainly print a journal cheaper than we have done heretofore, and though the rate given above has been one long established, I have decided to put it at just one-half as much, or 5c. per line, for every 1,000 copies. As GLEANINGS contains nothing but reliable advertisements, and only those pertaining to bee-culture, I think this is liberal; do not you? 6,000 copies are now printed every month, and at least 1,000 are given away monthly as sample copies.

FOOT-POWER SAWS.

Since sending you a sketch of a foot-power saw, I have been walking around——not the "central stairway," but south of the north pole, and have got up another foot-power saw, of extremely simple construction, with nothing to wear out or get out of order.

It consists of a fly-wheel 40 in. in diameter, a 5 in. crank, a pulley, 3 in. (it can be less), on a saw mandrel, and a belt which goes right up over the pulley, with no useless gear or friction.

You state that the hand-power saw works well, although it moves the saw slowly, simply because there is power to move the saw; so this new rig works well, although the saw only revolves 13 times while the fly-wheel revolves once. The saw is 8 in.

H. SMITH.

New Hamburg, Ont., Can., Oct. 10, 1878.

Now I come with a few questions and perhaps some ideas of my own, out of which you may take the conceit if you can.

Why not fasten strips of fdn., one or two inches wide, to the top bar of the brood frames, instead of filling them with an entire sheet at so high a cost? Mind you, the bee family must make the wax at any rate. This will insure good straight combs, at least I know from experience that narrow strips of natural comb used in this way for guides, insure good combs.

What do you mean when you say the bees "draw out the cells," when speaking of fdn.? Do you mean to say that the bees draw the cells from the sheet of fdn., using the wax contained in the fdn. instead of building out the cells with the wax secreted from their own bodies? I "demur."

Is there any "art" in hunting for a queen in a populous hive, that is superior to mere perseverance and patient hunting for her? Are the bees likely to cluster over her, thus keeping her hidden from the eyes of the person searching for her? Is she likely to forsake the combs and crawl down on the bottom board with other bees, which may be driven there by the smoke or by fright?

An article from the pen of the editor, or some other experienced person, on this subject, would be highly appreciated. I find it a very difficult matter, at times, to find the queen; while at other times I can "run upon" her without spending much time; but this is seldom.

G. W. DEMAREE.

Christiansburg, Ky., Oct. 12, 1878.

The bees will be very likely to build drone combs, below your strip of fdn. In fact, the great purpose of the fdn. is to absolutely get rid of the chance of any drone comb. The bees do use the wax put in the fdn. for drawing the cells clear to the top, and if you are not satisfied otherwise, color some fdn. with indigo, and then you can readily see where they begin to drop the colored wax and use the new of their own secretion. The experiment is an old one, and has been tried many times. The best way to hunt up queens is to "hunt them up," just as you do, and you will soon learn to know by the motions of the bees, pretty nearly where the queen is. Practice makes perfect. The subject is considered in part third of A B C. Italians behave differently from black bees; the queen of the latter sometimes hides in a cluster.

UNFERTILE QUEENS AND QUEENS THAT WON'T LAY.

I see from GLEANINGS that others have been troubled with unfertile queens, this season, as well as myself. I have had 5 or 6 of them. They generally come off with the 2d and 3d swarms. I suppose when the queen hatches after the 1st swarm, she takes her bridal tour, and the bees follow and cluster, and we hive them as a natural swarm.

I manage them as follows: if I do not find eggs in 4 or 5 days, I insert a comb of eggs and brood. If they do not start queen cells, I judge they have an unfertile queen. I then divide the stock, giving each division a frame of brood. The one that has no queen will start queen cells in 24 hours. I then hunt up the queen in the other division and kill her, and again unite the two, and they will raise a queen and do well.

INTRODUCING BY ARTIFICIAL QUEEN CELLS.

I have successfully introduced all the queens sent, 8 in number. I make a queen cell around a stick, out of fdn., and lay it, with the queen, on top of the frames; in one hour, they will liberate and accept her without any fuss or trouble. Try it.

All the progeny of the queens received are 3 banded, except of one, which are 2 and 3 banded; one of the hybrids produces the best marked bees among them.

I have taken 1,000 lbs. of comb and extracted honey, about 500 of each, from 18 stands and their increase. If I had transferred all in the spring into the Simplicity, I would have got 500 lbs. more; enough to pay for hives and trouble.

I am well pleased with everything sent me, except the transferring clasps: I cannot utilize them, only on broad combs. Much obliged for your promptness in shipping goods ordered, and as ordered.

GEO. W. FORMAN.

Ripley, O., Oct. 5, 1878.

I feel pretty sure, friend F., that your plan of introducing by your artificial queen cell will succeed little better than letting them loose at once. The greatest complaint has been of queens that were attacked after they had been apparently well received. I would not trust to *any* plan, unless it was followed up by careful watching until the queen began to lay.

MORE ABOUT FERTILIZATION OF THE QUEEN.

As I do not remember to have seen a statement from any one, as to how a queen is freed from the male organ of a drone, I will give my experience for what it is worth.

Yesterday afternoon, I opened a nucleus to see if a queen that had been hatched some few days had been fertilized. The first thing I noticed was a group of bees, and the queen in the midst of them. One bee was biting at the organ of the drone, which seemed to be firmly attached to the queen; he pulled at it with force enough to lift the queen from the comb, without removing it.

As soon as she got loose from him, she ran along the comb and the bees after her, trying to get hold of the projection. I watched them for a minute, and as they seemed to stop their endeavors to free her, I thought they might be frightened from my holding them out in the air; so I placed the frame back in the nucleus. That was late in the afternoon. This morning I saw her again, and she was freed from her burden.

From what I saw, I infer that the bees free the queen from the organ, and that it requires some time for them to get it away, as it seems to be very firmly attached. T. B. PARKER.

Goldsboro, N. C., Sept. 26, 1878.

I have seen precisely what you describe, friend P., but my conclusion was that the white substance was finally drawn into the body of the queen, and I have closely watched a good many. The bees seem to grab for it, just as they do for a piece of larvæ that is thrown out of the cells, in cutting out queen cells, or larvæ for queen rearing. It is true, I have considered whether it might not be that they, sometimes, in their meddling, pulled the organ from her, and I have wondered too, whether this might account for the pretty well authenticated fact, that queens sometimes mate more than once. Give us the facts and we shall, in time, get at the truth.

Find enclosed $1.25 for ½ dozen A B C books. I received those you sent me, and the first bee-keeper I came across, on looking at them, took one and paid for it; the other is gone the same way, and more are engaged. J. F. RACINE.

Walben, Ind., Oct. 8, 1878.

THE SITTING HEN QUEEN NURSERY.

The next thing in order will be for you to get us up some large goose eggs, to hatch our queens in. R. B. PARKER.

Lafayette, Ind., Oct. 8, 1878.

All right! Just get some tin tobacco boxes, paint them white that old "Biddy" may imagine they are eggs, put in wire cloth apartments to keep the cells separate, and then we have use for all the incorrigible sitting hens that the neighborhood can furnish. Have the hen located in a convenient box, right handy in the apiary, and——good bye, lamp nursery. Each box should hold 8 queen cells comfortably, and one of the large Brahma hens would cover safely about 7 boxes; say one hen to every 50 queens. It will be well to have an extra hen, in case one should play truant; and perhaps we could find a couple of them that would work lovingly in the same nest. If hens sit now, as they used to in my boyhood days, I presume there will be no difficulty in securing candidates for the office. I can furnish boxes with apartments for 15c. each; and sitting hens——will some of our poultry men send in bids for furnishing sitting hens for 1879?

The lamp nursery has one very important advantage, because we do not have to cut out the cells, as we do with this new arrangement. We must not forget to give due credit to the friend who used the clam shells for the purpose, for had it not been for him, this idea might never have suggested itself.

NEW THEORY.

We had the State fair in Detroit last week. I was surprised to find so little in the bee line. There was one nucleus swarm, one Everett extractor from Toledo, some very fine honey, and one or two Simplicity hives; also a man with a new theory, or one new to me. The theory was this: give a swarm a queen cell or a virgin queen, and if there be no way for the queen to meet a drone, she will lay eggs, raise drones, and mate with one of them, and then raise workers. What do you think of his theory?

It would be almost, if not quite, impossible for a queen to be fertilized by one of her own drones, although some who claimed to have succeeded with fertilization in confinement say such things have happened. A queen rarely lays drone eggs before she is at least two weeks old, and it would be then 24 days more before the drone could be hatched. Allowing 10 days for him to grow to sufficient maturity to fly out of the hive, we have the queen at least 7 weeks old, before fertilization. Queens have been known to be fertilized after they were 3 weeks old, but cases are rare where it is delayed beyond 2 weeks.

GRAPE SUGAR.

I have been waiting to hear some definite report on feeding grape sugar to bees. If I am not mistaken, you said in GLEANINGS last winter, "Wait and see what success friend Shaw has in wintering bees on grape sugar;" but I have seen no report. You say, better feed sugar for winter stores; please tell me when and to what extent to feed it. Is it safe to feed late? I have fed in the spring, but never in the fall.

I stated, at the proper time, that Mr. Shaw succeeded in bringing through one of the two colonies wintered on dry combs, with lumps of grape sugar laid over the frames, but that the other one died. The only trouble with the grape sugar for wintering is that it may get so dry that the bees cannot moisten it. If they have 10 lbs. of honey, I think they can be safely given grape sugar. See FEEDERS AND FEEDING in A B C.

UNFINISHED OR DAUBED SECTIONS.

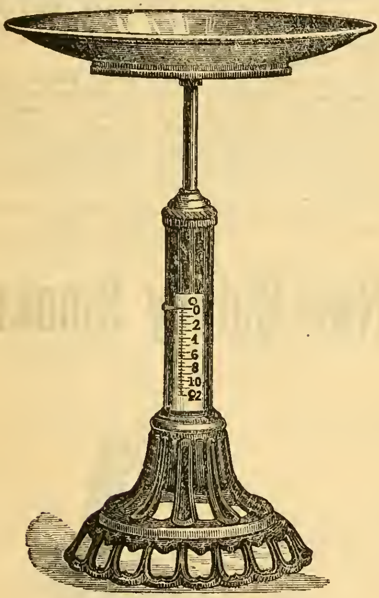
Friend Shane wishes to know how to fix sections when the bees do not cap over all the cells. Just take such ones, together with any which may be daubed with honey, and put them into a box, and place them where the bees can get at them for a short time, and they will clean them up nicely. Do not let the bees have them long enough to uncap any cells. It is a good way to place the box at the entrance of a hive, for a short time, just before night, then take them away and shake or brush off the bees. J. G. S.

Detroit, Mich.

Your plan is very good, if you do not get the bees robbing, or let them go so far as to uncap the sealed cells, which they will sometimes do in a very few minutes. We are getting rid of our unsealed honey and unfinished sections, by cutting it out and selling it in pans and plates as "chunk" honey. This chunk honey may be so arranged as to look very pretty; and those who object to buying wood and glass with their honey can have the "clear stuff" at the same price per lb. At present the chunk honey is selling faster than any other.

WEIGHING OUT HONEY FOR RETAIL PURPOSES.

WHO has not felt what a nuisance it is, to be obliged to weigh the plate, pail, or dish, in which honey is wanted, and then to subtract this weight from the gross weight of the whole, without making mistakes. A great deal of the time, I forget to weigh the dish a neighbor has handed me; at other times, unless I put it down with a pencil, I forget how much the plate weighed; and then, most humiliating of all, I have to confess I make mistakes in subtracting. More than this, there seems to be a kind of fatality in my mistakes, for they are almost always—so it seems—in my favor; and then my friends have some reason for thinking that I made them on purpose. Well, a few days ago, I saw an advertisement of the scale which I figure below. As it came from the well known firm of Chattillon of N. Y., I thought it must certainly be a good one.

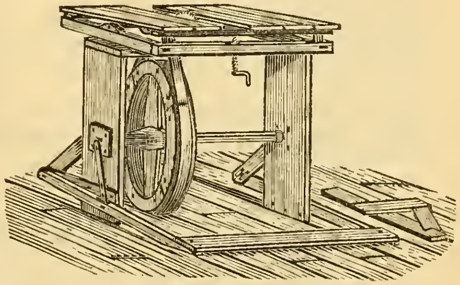


SCALE FOR WEIGHING HONEY.

At the top of the iron standard, just under the tin dish, is a brass cap, with a milled edge. By turning this cap, the point that stands on 0, in the cut, will be made to move up and down. Very well; suppose a customer brings a pitcher for some honey. Set it on the scale, and the pointer sinks, until it tells the weight of it. Pay no attention to this, but turn the brass cap until the pointer again stands at 0; now you are ready to let your honey run in until the pointer tells the number of pounds he asked for. I ordered a dozen of them at once. They cost $1.00 each, and retail for $1.25. All right. A plate was set on the tin dish, the brass cap turned, a section of honey laid thereon and weighed correctly, but I thought the index seemed to move a little by "hitches." As it was advertised to weigh up to 12 lbs., I next tried our big dictionary. The hitches were, with this, even worse, and the index could be set with a variation of as much as a pound and a half. The difficulty seems to be in the friction of the steel rod in its bearings, especially, if the weight is the least bit on one side. To remedy this, the manufacturer has put in a pair of steel rollers at the bottom, but still the scale is not near sensitive enough. Now I have taken all this space to describe a worthless thing, because I think that perhaps some of you, my friends, may have ingenuity enough to devise a scale that will meet our wants. It should work so easily as to record even a quarter of an ounce, and I should like the price to be not over 50c., if the thing is possible. I have commenced "walking" on it, but it don't quite come. The one described above is patented, and I think that must be what is the matter with it.

HUTCHINSON'S FOOT POWER BUZZ SAW.

AFTER reading the description on the first page of this number, our engraver tried his hand at giving you a sketch of the machine as it probably looks, which I submit to you below:



HOME MADE, FOOT POWER BUZZ SAW.

To stiffen the cut off bar and hold it exactly square, we use a brace on the sliding bar, which is seen on the floor at the side of the machine. This brace is put on so as to cut exactly a square mitre. The whole arrangement looks so much like a figure 4, that we have given it that name in our work shop. The machine must be very firmly screwed to the floor, and braced so that it will not twist or shake. The balance wheel must also be very accurately balanced before the counter balance is added. Everything must work true, smoothly, and easily. If you want a larger balance to get a higher speed, let it go down into the floor, or have a box or platform to stand on, while operating it.

ERRATA.—On page 329, Oct. No., the address of Mollie O. Large, instead of Pine Hill Apiary, Millersville, *Pa.*, should read, Pine Hill Apiary. Millersville, *Ill.*

We regret this mistake very much, as many may have sent letters containing money for the seed of the spider plant. Will those who have done so, please take notice.

The money will probably be returned through the dead letter office.

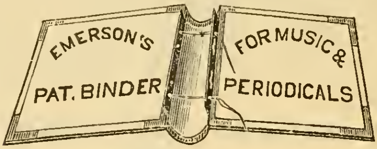
Also, in the article, "Queens by Mail," E. B. Plunket's address is given, Rome, Ga.; it should read Atlanta, Ga.

Cash for Beeswax!

Will pay 25c per lb. for any quantity of nice, clean wax, delivered at our R. R. station.
A. I. ROOT, Medina, O.

Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ½ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.
A. I. ROOT, Medina, Ohio.



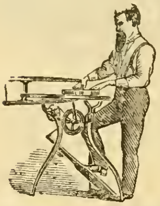
You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

Send **Ten Cents** for a Sample Copy of

The American Bee Journal

The Oldest, Largest and Best Bee Paper.
THOMAS G. NEWMAN & SON, CHICAGO.



BARNES' PATENT FOOT POWER MACHINERY! CIRCULAR and SCROLL SAWS. Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making**. It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**
W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

STILLMAN & Co.
Engraving
ON WOOD
N.W. Cor. FRONT & VINE
CINCINNATI OHIO.

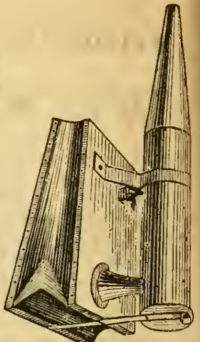
Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 00
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	8 50
" " per sheet	9

We will ship it from Medina, or from Philadelphia, as may be most convenient.
A. I. ROOT, Medina, Ohio.

KING'S DIRECT DRAFT SMOKER,



Is giving unbounded satisfaction wherever used. It *economizes all* the wind and smoke, *burns all combustibles* and goes out ONLY *when* PUT OUT. It is the same size as "Bingham's standard," and is NEAT and DURABLE. Price, $1.00; by mail $1.25. Address,
A. J. KING & CO.,
6tf 61 Hudson St., N. Y.

☞**FRIENDS!** If you are in any way interested in

BEES OR HONEY,

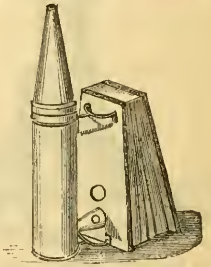
THE A B C OF BEE CULTURE,

Part First, will tell you all about the latest improvements in securing and **Marketing Honey**, the new 1 lb. **Section Honey Boxes**, making **Artificial Honey Comb**, **Candy for Bees**, **Bee Hunting**, **Artificial Swarming**, **Bee Moth**, &c., &c.

Part Second, tells **All about Hive Making**, **Diseases of Bees**, **Drones**, **How to Make an Extractor**, **Extracted Honey**, **Feeding and Feeders**, **Foul Brood**, etc, etc. Both parts are fully illustrated with engravings, some of them quite costly. *Nothing Patented.* Either one will be mailed for 25c; ½ doz., $1.25; 1 doz., $2.25; 100, by express, $15.00.

The two parts bound in one mailed for 40c. Per dozen, $4.00. Per 100, by express, $25.00.
A. I. ROOT, Medina, Ohio.

New Quinby Smokers!



The Smoker I am offering the present season, is entirely new in many respects, and is pronounced the best in market. In quality of material and manner of construction, it is as durable as can be made. It works as perfectly in every way, as any smoker now in use.

See what bee-keepers say of it.

"I have thoroughly tested the smoker. It works like a *charm*. Everything about it is perfect. They are made in a thorough and workmanlike manner. I consider it the best smoker in use."
Wenham, Mass., July 10, 1878. H. ALLEY.

"After selling a large number of your smokers we are gratified to know that they give general satisfaction. We keep all the prominent styles in stock, and whenever a visitor buys one he always selects the New Quinby in preference to any other."
Canajoharie, N. Y., July 17, 1878. J. H. NELLIS.

Sent on receipt of price.

2½ inch tube by mail	$1 75
2 " " "	1 50

By express 25 cents less.
Send for circular of General Supplies to
5-4 L. C. ROOT, Mohawk, N. Y.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of *postage required.*

Canada postage on *merchandise* is limited to 8¾ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First	$ 10
	Basswood trees for planting. For prices see Price List	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey	2 50
	“ “ waxed and painted	3 50
	Bees, per colony, from $7 to $16, for particulars see price list	
10	Bee-Hunting box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS	50, 60, 75
10	Blocks, iron, for metal cornered frame making	15

One of the above is given free with every 100 frames, or 1000 corners.

10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, *complete;* circular with cuts free on application. Two saws and two gauges included	35 00
0	Buzz-Saws, extra, 85c, to $3.50. See price list.	

The above are all filed, and set, and mailed any where

60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
3	Cages for queens, wood and wire cloth, provisioned. See price list	10
30	“ “ “ per doz	1 00
20	Candy for bees, can be fed at any season, per lb	15
0	Cards, queen registering, per doz	06
0	“ “ “ per 100	40
60	Chaff cushions for wintering (see Nov. No. for 1877)	30
9	“ “ without the chaff	15
40	Chaff cushion division boards	20
2	Cheese cloth, for strainers, per yard	10
10	Clasps for transferring, package of 100	25
	Climbers for Bee-Hunting	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles	1 50
	Comb Foundation Machines complete $35 to	100 00
20	Corners, metal, per 100	75
20	“ “ top only, per 100	1 00
15	“ “ bottom, per 100	50

On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.

	Corners, Machinery complete for making	$250 00
15	Enameled cloth, *the best* thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards)	22
	Extractors, according to size of frame, $6 50 to 10 00	
	“ inside and gearing, including honey-gate	5 00
	“ Hoops to go around the top	50
	“ “ per doz	5 00
5	Feeder, Simplicity, (see price list) 1 pint	05
7	Feeders, 1 quart, tin, (see April No)	10
4	The same, half size,	05
25	The same, 6 qts, to be used in upper story	50
0	Files for small circular rip saws, new and valuable, 20c; per doz. by express	2 00
	“ The same, large size, double above prices.	
2	“ 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbet and Clasps	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet)	20
25	Gates for Extractors tinned for soldering	50
50	Gearing for Extractor with supporting arm	1 25
0	GLEANINGS, Vol's I and II, each	75
0	“ Vol's IV and V, each	1 00
0	“ Vol. III, second-hand	2 00
0	“ first five neatly bound in one	5 00
6	“ “ “ unbound	4 00
	Hives from 50c to $6 25; for particulars see price list	
0	Honey Knives, straight or curved blade	1 00
	“ “ ½ doz	5 25
	“ “ ½ doz by Express	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list	
	Lamp Nursery, for hatching queen cells as built	5 00
0	Larvæ, for queen rearing, from June to Sept	25
15	Leather for smoker bellows, per side	50
0	Lithograph of the Hexagonal Apiary	25
0	Magnifying Glass, Pocket	50
0	“ “ Double lens, brass on three feet	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0 0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard	10
10	Opera Glasses for Bee-Hunting	5 00
18	Paraffine, for waxing barrels, per lb	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester	8 50
0	Queens, 25c to $6 00. See price list	
1	Rabbets, Metal, per foot	02
	Salicylic acid, for foul brood, per oz	50
10	Saw Set for Circular Saws	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws	
0	Scissors, for clipping queen's wings	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each	05
	Section Honey box, a sample with strip of fdn. and printed instructions	05
	Section boxes in the flat by the quantity, $9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, *raised near us*, per lb	25
18	“ Catnip, good seed, per oz. 20c; per lb.	2 00
0	“ Chinese Mustard, per oz	15
18	“ Mellilot, or Sweet Clover, per lb	60
18	“ White Dutch Clover, per lb	35
	“ Motherwort, per oz. 20c; per lb	2 00
18	“ Mignonette, per lb. (25c per oz)	1 75
	“ Simpson Honey Plant, per package	05
	“ “ “ “ per oz	50
18	“ Silver Hull Buckwheat, per lb	10
	“ “ “ “ peck, by Express	75
	“ Common “ per peck	50
18	“ Summer Rape. Sow in June and “ July, per lb	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions	10
	Shipping Cases for 48 section frames of honey	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c	
1	Slate tablets to hang on hives	01
	Smoker, Quinby's (to Canada 15c extra)	1 50 & 1 75
5	“ Doolittle's, to be held in the mouth	25
	“ Bingham's $1 00; 1 60;	2 00
25	“ OUR OWN, see illustration in price “ list	75
2	Tacks, tinned, per paper, (two sizes)	10
5	Thermometers	40
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of vail, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	10
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot	05

All goods delivered on board the cars here at prices named.

A. I. ROOT, Medina, Ohio.

ADVERTISEMENTS.

Advertisements will be received at the rate of 20 cents per line, Nonpareil space, each insertion, cash in advance; and we require that every advertiser satisfies us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them.

VICK'S FLORAL GUIDE

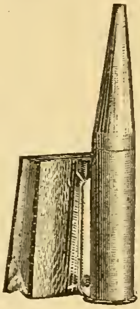
A beautiful work of **100 Pages, One Colored Flower Plate, and 300 Illustrations,** with Descriptions of the best Flowers and Vegetables, and how to grow them. All for a Five Cent Stamp. In English or German.

The **Flower and Vegetable Garden,** 175 Pages, Six Colored Plates, and many hundred Engravings. For 50 cents in paper covers; $1.00 in elegant cloth. In German or English.

Vick's Illustrated Monthly Magazine—32 Pages, a Colored Plate in every number and many fine Engravings. Price $1.25 a year; Five Copies for $5.00.

Vick's Seeds are the best in the world. Send Five Cent Stamp for a FLORAL GUIDE, containing List and Prices, and plenty of information. Address
12-3 JAMES VICK, Rochester, N. Y.

SMOKE AND SMOKERS.



I am overwhelmed with letters asking "which size of smoker is the best?"

Mr. J. E. Hetherington ordered eight of the *large* for *his apiaries*, and for *coarse fuel* they are the *best*.

The Standard is what its name implies, and constitutes the *bulk* of *sales* so far.

The small is a pretty implement answering nicely for a few colonies of bees, and to kill *lice* on house plants; it is larger, however, than the improved Quinby.

The first "Direct Draft" smoker *ever sold* has been used one year, and sold for one dollar, as the gentleman wanted a *large* size.

It was a Standard and he paid $2.00 and says "he *would* not be *without* one a *single day* in the *season* for the *price*."

They *go all* the *time* and *burn sound* or *rotten* wood, *tobacco*, or *sulphur*.

Directions sent with every smoker.

These smokers are a *necessity in modern bee culture*, and are *indispensable* in the easy, *profitable* and *pleasant management* of bees in any hive—ancient or modern. Sent by mail, post paid, on receipt of price.

Extra Large, per Express..	$1 75	Mail....	$2 00
Standard	" ...	1 50	"	1 60
Small,	" ..	90	"	1 00

Patented January, 1878. Manufactured *only* by the inventor, T. F. BINGHAM,
4tf Abronia, Allegan Co., Mich.

Early Queens.

J. P. H. BROWN, Augusta, Georgia, Importer and breeder of Italian queens, and dealer in Bee-Keeper's supplies. Queens bred a month earlier than in the North. Low express rates. Packages of five or more queens sent free of express charges to any part of the United States except California and Oregon. 11tfd

DOOLITTLE

Will send the American Bee Journal for 1879 to any address for $1.00. I shall write (monthly) for the A. B. J. *only*, for 1879. G. M. DOOLITTLE,
12 Borodino, N. Y.

DAVENPORT GLUCOSE MANUFACTURING CO.

MANUFACTURERS OF SUPERIOR DOUBLE REFINED GRAPE AND MALT SUGAR, CRYSTAL GLUCOSE SYRUP.

Superior Double Refined Grape Sugar for feeding bees, at 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb. by the barrel. Samples of the Grape Sugar will be sent prepaid, by Express, on receipt of 10 cents.
11tf LOUIS P. BEST, Sup't, Davenport, Iowa.

New Building! New Machinery! New Prices! Better Goods! and Larger Stock!

J. H. Nellis is just completing a large, two-story, brick building, into which he will put a large steam engine, and the best machinery that can be procured, for the manufacture of Bee Hives, Honey Boxes, Comb Foundation, &c., &c. He expects to have it in operation about January 1st, 1879, at which time a new price list will be issued. Our capacity for doing business will then be a hundredfold better than heretofore.

A New Monthly Devoted to Bees.

About January 15th, we will issue the first number of our new periodical, "*The Bee-Keepers' Exchange*," *a Magazine devoted exclusively to the best interests of producers and consumers of honey.* We will spare neither time, talent, nor expense to make this periodical at once attractive, useful and successful. To this end, we will not fill up the columns devoted to reading matter with puffs and publisher's notices of our own goods, but will confine all advertisements strictly to the space set apart for them. That we may accomplish this, we invite our large corps of friends and customers to contribute freely to our columns.

Single yearly subscription, 75c. Two subscriptions at one time, $1.30. Three to five, 60c. each. Very liberal inducements to agents.

A new Premium list will soon be ready. We hope our friends will rally around the new periodical, and at once establish it on a prosperous basis. A prospectus of the new periodical giving further particulars and details is now ready, and will be sent free to any address. J. H. NELLIS,
12 Canajoharie, N. Y.

Am. Silver Watches For $10.00.

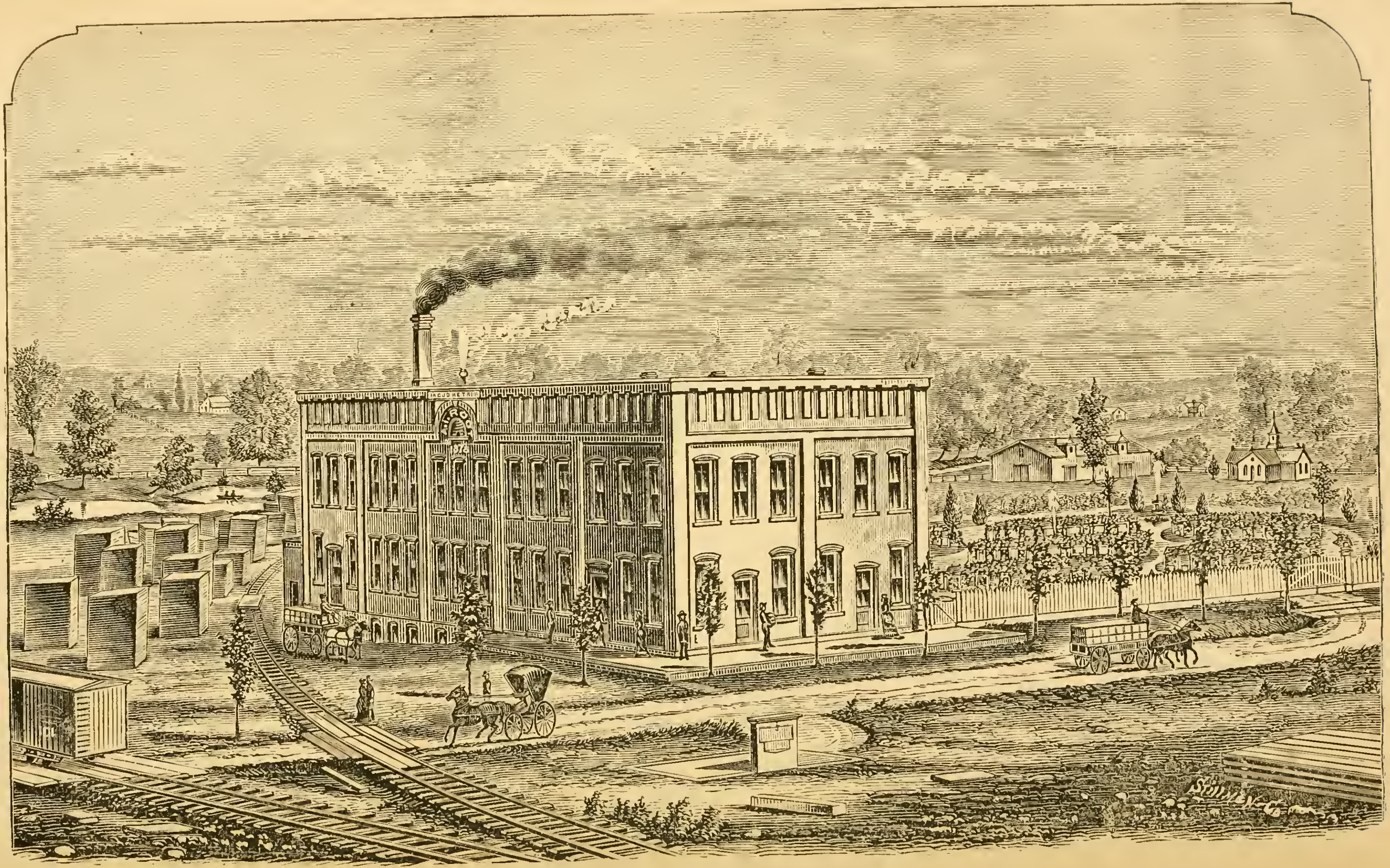
In all my experience in the Watch and Jewelry Business, I have never before seen a good Silver Watch for the low price of $10.00. I have just succeeded in getting, of the American Watch Co., a good strong

SILVER WATCH,

ALL REGULATED, AND IN

Running Order,

That I will mail to any address for the above price; and if it does not please you, you may return it within 10 days, and get your money. Or I will send you the Watch, for 20 subscribers, at $1.00 each. You can have either hunting or open face, and such a Watch, for a Christmas Present, ought to make any boy (or man either) happy. A. I. ROOT, Medina, O.



THE "HOME" OF THE HONEY BEES.

OUR NEW HOME.

A GREETING, I tender to you, my 4.000 readers, as I hand to you my last number for the year. Just fancy you see me, on the corner of the platform, with hat removed, and hand extended, welcoming you to this, our new home. A few nights ago, I dreamed there was one among you, who refused to shake hands. I hope this was only a dream, for I should hate to close the year, thinking that any thing had occurred which would prevent even those I have displeased most from giving and receiving a friendly shake of the hand, in spite of our differences.

Are you pleased with the grounds? So am I. Every little while, I look at them and wonder if it can really be so, that God has entrusted so much to me. It is but a little while ago, that I was the awkward and uncouth boy whom every body laughed at and made sport of, because I was so slow, and could never understand any thing; and then, when my awful temper was roused by their ridicule, and I smashed things, or talked bad and said I hated every body, they laughed the more, and all I could do was to go off in the woods by myself and cry. I sometimes wonder even now, if it is not a mistake God has made, and if it will not be taken away and given to somebody else. I fear I shall get mad and smash things again, and wrong and abuse those who are so patiently doing my bidding. I fear I shall get proud, up in my office under that stone bee hive, and choose some other God, in place of that gentle Savior who has so many, many times lifted me out of my troubles, and turned my erring feet in the way they should go. It is no easy matter for me to do right and keep humble; temptations sometimes present themselves, in a way that makes me feel almost as if I would trade all hope of heaven, just for the privilege of plunging headlong into what I know would be ruin to myself, and those all about me. If my life is scanned and scrutinized closely, it will show many stumblings, and I fear the year to come may prove much like the one past; but I know my Savior will stand before me, if I keep fighting and trying to follow him.

The artist has made the building look rather shorter, compared to its width, than it really is, for a hundred feet is pretty long for a building. The side track, you see, goes down toward the pond on an incline. The pond, too, is farther away than is represented, and the apiary, really, covers about 2½ acres. The small building on the ground, was one of the halls for the fair. In the summer, we used it for our Bible class on Sunday mornings, as the boys seemed to like to congregate there. The large building next it is the old floral hall. It now contains about 2.000 bushels of chaff for making chaff hives. I told you how the boys annoyed me, by playing cards there on Sunday. I got their names, and went and talked with them individually, closing something like this:

"Boys, which will be the surest, to get you to give me a promise, on your word and honor, or to buy some big padlocks? Do you think your word would be as safe as a lock?"

"Yes sir; yes sir;" came the replies at once, and I thought so too. I do not think they have been there since.

The gravel walk extends around the seven apiaries, and makes a complete circle about the whole. The grape vines are all planted, but not the evergreens. The fountains are not yet, and a tight board fence, takes the place of the neat one the engraver has made. The trees along the road are basswood that we have just set out, they are to go clear round the entire grounds. The inclined side track is where the boys were so determined to ride down hill. The car you see is for drawing up lumber. The lumber needed is placed on the car, and pushed up before the door, where the team stands. It is then handed directly to the planers, then to the rip and cut off saws, and so on until it comes out near the packing room, finished hives or sections, as the case may be.

The editor of our Medina paper was down a few days ago, and "interviewed" us. If you will excuse the usual complimentary phrases used, I think I will give, as an extract, what he says:

[From the Medina *Gazette*, of Nov. 26th, 1878.]

A NOVEL ENTERPRISE.

A. I. ROOT'S NEW MANUFACTURING ESTABLISHMENT.

ALL KINDS OF HIVES, MACHINERY AND IMPLEMENTS FOR THE ENCOURAGEMENT OF BEE CULTURE AND THE PRODUCTION AND CARE OF HONEY.

AN INDUSTRIOUS MAN AND A WONDERFUL GROWTH OF BUSINESS.

The name of A. I. Root has become a household word in every family in the land, where the raising and care of bees is a part of the industry connected with the family interest and income. In Medina county Mr. Root is known by name, if not personally, to all the inhabitants, having been raised in our midst from boy to man, and having been one of the business men of Medina for the past 18 years, all of which time he has successfully carried on the manufacture and sale of jewelry; his silver jewelry becoming known far and wide for its purity, fineness in quality, and its honesty in weight. It was in 1860 that Mr. Root first established himself in the jewelry trade in Medina, and this for many years was his chief business. He was prosperous in his trade, and soon took rank as one of our most successful business men, which position he has always held.

In the year 1865 he first became interested in the subject of bees, by the capture of an absconding swarm, which he hived and which was the nucleus around which his interest centered and from which the growth of his great bee business has sprung. From a circular printed in 1872 and sent out in answer to numerous inquiries about the business and his experience, the little "GLEANINGS IN BEE CULTURE" sprung, the first number being published in 1873, as a quarterly, at 25 cts, per year. But the favor with which it was received caused the plans to to be changed and it was issued as a monthly at 75 cts. per year, until 1876, when it was enlarged and the price fixed at $1.00 per annum. Its circulation nows exceeds 4,000.

From a small beginning in the manufacture of apiarian implements in 1872, Mr. Root's business has increased until during the last season he has employed upwards of 60 hands, and sent his goods to all parts of the world. It is not our intention, however, in this article to go into biographical particulars too minutely, but give a history and description of the new brick building which Mr. Root has erected during the past summer and fall, and which is now nearly completed and ready for occupancy; a part of his force being already in the building and busily at work.

The old quarters in the jewelry store and all of its adjoining apartments that could be rented proving too limited for his increasing business, early last spring Mr. Root began planning for the purchase of grounds near the depot, in our village, upon which he would erect suitable buildings for his purpose, and also lay out to his taste an apiary and pleasure grounds with the view—should his prosperity warrant—of eventually building a home, not only for himself and family, but for those without homes and needing work, among the boys and girls of this vicinity, where he could give them useful employment and instruction in the ways of Christian living. The grounds belonging to the Medina County Agricultural Society met his views as to location, situation, &c., better than any other, and he at once proposed the purchase of them to the Board, offering them $[illegible] per acre. This was considered by all a good round price; but many of the members of the society opposed the sale of their grounds at any price, and others objected unless they could purchase equally good grounds and put themselves in as good shape as they were then for the sum received. The particulars of the various meetings of the Board and Committees we have given from time to time in these columns, and will only say at this time that after some delay and parley, the sale of the 17½ acres constituting the old fair grounds, including the buildings, was finally made to Mr. Root for the sum of $[illegible]. This purchase was made in June, and immediately ground was broken in the north-east corner, just west of the Medina depot, and the foundation laid for his new manufactory, which is now about completed, presenting a fine appearance and greatly improving the west portion of our village.

This building was erected under the supervision of Mr. Root's brother-in-law, Mr. J. G. Gray, recently from Michigan, who is also rendering valuable assistance in fitting up the establishment with the needful machinery, &c. W. W. Munger, of Medina, was chief manager of the stone and brick work, and Alvah Washburn directed the selection and arrangement of the machinery. The total cost of building and machinery will not vary much from $10,000.

The building is 100 feet long, extending north and south, by 40 feet wide, and three stories in hight, including basement, built entirely of stone and brick. The foundation is of Grafton stone, very solid and secure. The basement is 8 feet in height, giving abundant room for work-shops therein; the other two stories are each about 12 feet. The whole building is well lighted by large windows and thoroughly ventilated. On the east front center, near the top, is an old fashioned bee hive, above which is the motto, "In God we Trust," and below, "A. I. Root—1878," all cut in stone. The roof is tin. The whole building is well finished and a model of neatness and convenience.

At the south end is the boiler room, 14x35, built on to the main building and joining the same, with a hip roof. In this room is a 50-horse power boiler, 48 inch shell, 12 feet long, and containing 48, 2½ inch flues. The steam pressure is 50 pounds when working all the machinery. Here is also found one of Stillwell & Bierce's heaters and filters, through which all the water going to the boiler has to pass, being heated in its course to 150 degrees, filtered through hay, thus purifying and taking out the mineral substances before going into the boiler. A large tub or cistern 4 feet high, 8 feet in diameter, and holding 50 barrels, is also located in the upper part of this room.

Passing north from the boiler room you enter the engine room in the basement of the main building. Here is one of Lord, Bowler & Co's. 50-horse power engines, new and bright, and kept as clean as silver by the engineer, Mr. Eugene L. Reeder, who evidently knows how to take care of and run an engine. The quiet, ease and stillness with which all the machinery runs is positively refreshing to witness. A 25 foot well has been dug in the engine room, but the supply of water not being considered sufficient, they are boring down deeper to get a stronger vein. Adjoining the engine room upon the east is a 20x20 lathe room and machine shop, the machinery of which is of good quality and all run by steam power. In fact a long line of shafting extends the entire length of the basement with all necessary attachments for running the whole machinery of the establishment. On the east side of the basement story is a room 15x70 feet, finished and furnished with all modern improvements as a tin-shop, where honey extractors and all other tinware work will be done up to order for the bee business.

The west side room of the same dimensions will be occupied as a wax room, for the manufacture of artificial comb foundation and kindred work. The north end of the basement will be occupied as a storage room.

Going up stairs we reach the first floor proper. Commencing at the north end, we first enter a room 7x12 in the northeast corner, to be occupied by the time and shipping clerks. The press room, 14x28, occupies the northwest corner. In this is a bran new No. 3 Cottrell & Babcock printing press, with all the latest improvements. Upon this the "Gleanings in Bee Culture" is printed. Also here is a new Standard paper cutter, with 28x32 inch cut, and everything about is fitted up for convenience and the dispatch of business.

Immediately south of the press room, we enter a large room 17x40, to be devoted to packing, marking and shipping, also to receiving and checking stock. Through this room passes an elevator, running from basement to second story.

Passing on south, we enter a large room, 40x70, abundantly lighted and heated, and known as the general work shop. Here we find machines for convenience of packers, frame rippers, small section frames, section cut off, section gang rippers, cut off saws, large ripper, planing mill, and other machinery, all with new tables, new saws and latest improved machinery and conveniences of every kind.

Again going up stairs, we reach the second story. In the north end is a room 14x30 for compositors. It will be occupied with printers' cases and a small job press. Also another room in the northwest corner, 12x30, for trimming, binding and finishing the Bee Journal. South of these are rooms about 14x32 for clerks, engravers and proof readers, and a large sample room, 25x50, for arranging a display of the various kinds of goods manufactured.

Mr. Root also has his private office on this floor, from which he has a flight of stairs leading to the attic, where he will have an experimental swarm of bees in active operation, actually going in and out of his stone hive, as shown on the outside of the building. Adjoining Mr. Root's office on the south is a room designed for keeping his files of the Bee Journals and the "A B C of Bee Culture;" also as a storage room for various kinds of seeds in use among bee men; and adjoining this, at the south end of the building, are two commodious rooms to be used for painting, japanning and finishing the honey extractors.

The whole internal arrangement is built after Mr. Root's approval, and it seems to fill the bill of requirements demanded by his growing apiarian business to the best advantage possible.

Just west of the building a few rods the apiary is located. It is now being laid out in hexagonal figures, about 75 feet each in diameter, one occupying the center with six surrounding, really seven apiaries, on the plan of the honey comb. Gravel walks are laid out between, with a circular drive surrounding the whole. In each hexagon are planted grapevines seven feet apart, and by each vine will be placed a hive; the whole occupying a space of about two acres, and calculated to accomodate 500 full hives and 500 for queen rearing, making 1,000 in all. The balance of the ground, aside from that devoted to the apiary and lumber yard, will be devoted to raising all kinds of honey bearing plants. The sale of the seeds from these plants will constitute quite an important industry, besides the honey they produce.

It is proposed to test here the honey bearing plants not only of America, but of all other countries on the face of the globe, as far as possible. It is expected in due time that Mr. Root will build a suitable fence around the whole, in place of the present old one.

The old floral hall of the agricultural Society will soon be moved from its present site, east, to near the present terminus of the R. R. switch, running into the grounds, and used as a storage house for lumber, etc.

A pond has been dug near the southeast corner of the grounds, taking in the old channel of Champion Creek, which passes through the entire south portion of the grounds from west to east. Here will always be an abundant supply of water, and a fine ice crop each winter, from which a good harvest of ice can be secured.

Taking all things into consideration, it now looks as if Mr. Root was well situated to carry forward his good work with increased success, as well as greatly improved facilities. We certainly wish him abundant prosperity.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VI. DECEMBER 1, 1878. No. 12.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: $1.00 Per Annum in Advance; 3 *Copies for* **$2.50; 5** *for* **$3.75; 10** *or more, 60c. each. Single Number,* **10c.**

MY EXPERIENCE. NO. 12.

GETTING SUBSCRIBERS FOR "GLEANINGS."

WE all know that GLEANINGS not only is a *good* bee-paper, but it is getting *better* all the time; in fact, if it were possible, it sometimes seems as though the last number was always the best. Now, if each and every one of us would renew our subscriptions this month, *and send in one new subscriber apiece*, don't you think Novice could make a still better paper? How is it, Novice? Do *you* think you could?

One year ago, I obtained ten subscribers, and I have added several names since; I do not mention this to boast of it, but with the hope that it may help some one else to get up a club. I thought I lived in rather a poor neighborhood for getting subscribers, but after I once entered upon the work, it did not seem so very difficult. I did not devote any time exclusively to it; but whenever I expected to meet a bee-keeper, I always had a copy of GLEANINGS in my pocket. I was not always particular as to what I received in payment; from one I took potatoes, from another, wheat, of another, store pay, &c.; anything that I had to buy was just as good to me as money.

Brother bee-keepers, try getting up a club, and help "scatter the good seed."

A SORT OF "HOME" PAPER.

I am a young man who has just bought and partly paid for a small farm. We, wife and I, are working hard to finish paying for our home; and we sometimes have to "figure pretty close," in order to obtain my "bee fixings." For instance, I had long wished for the back volumes of GLEANINGS, but had never seemed to have the money to spare to buy them; at last, however, by going into partnership with a neighbor, and earning my half by getting up a club, they were obtained.

In spite of financial difficulties, under which I commenced bee-keeping, I have prospered in it exceedingly well; perhaps my love for the business has had something to do with my success. I sometimes wonder if I do not think *too* much of my bees. For instance, I wore a suit of clothes last spring, until I was ashamed of them, in order to save money to buy a swarm with an imported queen. What do you think, Novice? Do you think it is possible for a bee-keeper to be *too* devoted to his business?

And there is one thing more that I would like to ask Novice, and that is, don't you think it is a good thing for some of us enthusiastic young bee-keepers, that we——well, havn't any bank account? If we had, we would probably buy a whole lot of bees, all the "modern improvements," and then——why, then go into "Blasted Hopes," to be sure.

There, my first year's "experience" is finished, and if it has helped any one else in their "first year's experience," it has "fulfilled its mission."

W. Z. HUTCHINSON.

Rogersville, Mich.

I am very much obliged, my friend, for your words of praise in regard to GLEANINGS, but to tell you the truth, it rather gives me pain, for I am afraid it does not deserve it, and I am sure I do not deserve the kind treatment that all my readers, as a general thing, have given me from the start. I do want to make it a home paper, and I do wish to have it worth to you all, what it costs, beyond a doubt. I do think it possible to think too much of our bees, and I do not feel that we have a right to go to too great extremes on any one thing. To a certain limit, you have a right to wear old clothes, if you wish, in order to save your money to buy bees, and no one should be ashamed to wear old clothes, under fitting circumstances. I do think it is a good thing for all of us, that money comes slowly, and only by hard work. Low prices for honey do not discourage me, for I feel that it will incite us to renewed exertion, more care, thought, and possibly inventions, for facilitating our work. I sincerely pray, that bee-culture may never attract those who make a living by speculation, and not by hard, earnest work. Your frank and truthful narration of your work, your ways of economizing, and your honest enthusiasm, during the past 12 months, my young friend, have interested and benefited us all, and I am sure I am not alone in wishing we might hear from you monthly, in the year to come.

THE TENEMENT HIVE.

I HAVE been making and using a hive of this sort the past season, containing 4 apartments, built on the Lawn hive principle, and I like them. I now have 11 of them in use, and have built no other since I commenced using them. Their advantages are economy of space on the ground, economy of material and labor in the construction, and convenience in working about or with them. Bees can best be shipped in Simplicity hives, but, for home use, the Tenement is far ahead of single hives. They are also much less affected by changes of temperature, and in cold weather, will help keep each other warm.

When painted white and shaded, I have had no trouble with combs breaking down in them, while in the others, I have been much annoyed in that way. In one case, I lost a swarm by the combs breaking down and partly stopping the entrance; the daubed bees stopped the rest of it, and so smothered all that were inside.

If you wish, I will make you the skeleton of one, without the filling and outer bottom, and send you. I have been benefited by your "travels round the stairway" enough to afford to do this, and it may save you some steps in that way. It will not weigh much, so the freight will be light.

I have shortened the frame to 16 inches, and put in one more in order to bring the tenement and hives nearer square; but as you use the Langstroth frames, I can make you the sample to suit them.

I have said nothing about it before, because I wished to give it a season's working test. This I have now done, and am well pleased with it; also all who have visited me have expressed favorable opinions of it, and if bee men, an intention of getting me to build them a sample to work from.

D. C, Underhill.

Seneca, Ill., Nov. 11, 1878.

My friend, you have been working upon the very idea I *have* been "walking on." You see, it is going to cost me a great deal to start my apiary of 500 or 1,000 hives for queen rearing next spring, and in studying upon out door hives and house apiaries (I am now satisfied that the house apiary gives more honey than any out door hives), I have thought seriously of something somewhere between the two. The objection to a house apiary for 6 or 12 hives is that we should have to go to the expense of making it so that one could get inside to work with them, and this is a serious objection, on several accounts, besides the expense. It is true, we could make a long hive, on the plan of friend Pierce of Dayton, O., but I should fear that queens would be lost from hives in one straight row, and I have found it very inconvenient working with hives, where you are obliged to stand only in front of them. With only four under one roof, it can be so arranged as to answer very well. The idea can scarcely be called new, for our neighbor Shaw, of Chatham, has used such hives for the past half dozen years, only that he did not use them as a chaff hive. If we have the cover or roof all in one piece, it will require at least two men to take it off, and this would be a great objection. It cannot be hinged on one side, for it would be thus greatly in the way. If the four covers came off or were opened separately, it would make complication and expense. Quadruple hives have been started a great many times, but so far as I can learn, all have been dropped sooner or later, and Mr. Shaw's, if I am correct, now lie stacked up in his monument of discarded inventions.

Many thanks for your kind offer, friend U., but I think a pencil sketch of your Tenement hive will do just as well, and will save us both expense. We *may* be able to overcome the objections.

Ladies' Department.

EDITOR OF GLEANINGS:—In behalf of lady bee-keepers, and the wives and daughters of those engaged in apiculture, I wish to suggest that Gleanings receive the finishing touch; i. e., have a portion set aside especially for the ladies; in short, a household department, in which matters dear to the feminine heart may be discussed according to her own sweet will. I write this request, believing that I express the wish of many.

Ida F. Noyes.

Detroit, Mich., Oct. 26th, 1878.

Now Ida. I will consent to anything in the world to please the ladies, and to further bee culture, but there is one thing I fear you have overlooked. You ladies bring Heads of Grain, Botany and Entomology (think of our friend Mollie, and the spider plant), the Smilery, and I suppose some of you will apply, after awhile, for space in Blasted Hopes, although I believe none have done so as yet. Mrs. Cotton has almost monopolized Humbugs and Swindles, and you certainly would not want her in your company, and the consequence would be that I should have to have a double set of departments all through, one for the ladies and another for the gentlemen. In our best schools, this matter has been canvassed, and I believe the decision is generally, that both parties are benefitted by being educated together. What shall I do? Have a separate department for the ladies, or shall I let them ramble at their own "sweet will," through the Heads of Grain, Botany, Smilery, Blasted Hopes, and Growlery, too? None have ventured into the Growlery as yet, but I am expecting them every day, and I have been wondering whether I had better dodge when you come, or throw myself on your mercy, and hand over all the money you have ever sent me rather than take the risk of incurring your displeasure. Friend Ida, there is another view of the case. We need all the help we can get, from good, sober, sensible, Christian women, not only in bee culture, but everywhere else, to set good examples, to teach us Christian charity for each other, to raise the weak, encourage the fallen, to chide and reprove us all when we need it, and to do the work God has entrusted to you, and to you alone. Ye wives, mothers, sisters, and daughters, can not the oft erring and stumbling brother who edits this paper, have your help, aye and your prayers, too?

HOME MADE, FOOT POWER, BUZZ SAWS, AND HOME MADE HORSE POWERS.

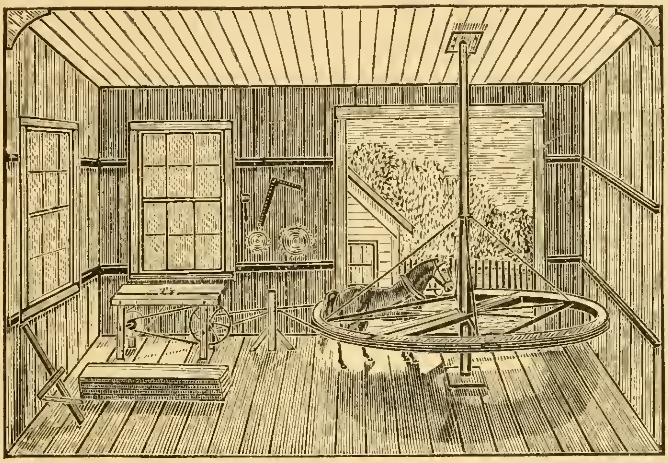
IN accordance with several requests, I have been looking the matter up, in regard to horse powers, and from quite a number of different devices, I have selected the one our engraver shows you below. As nothing is said in the circular in regard to a patent, anyone can make the machine, who can do so cheaper than to buy one. The wheel can be made much in the same way as the one described last month, for a foot power saw. We give the following from their circular.

THE ADAMS HORSE POWER,

Which the cut is designed to represent, is just the power every farmer needs, who has feed to cut, feed to grind, wood to saw, corn to shell, grain to clean, water to pump, apples to grind for cider, or anything in fact, where a 1, 2 or 3 horse power is desirable. It is simple, durable and low-priced. It can be set up, and used, on a barn-floor 12 feet wide. and a lad 15 years old, can set it up and get it to work, alone, as quick as he can harness a horse and hitch it to a buggy, and when not in use, it can be as quickly taken down, and set to one side, where it will not occupy any useful room or space. It requires no mechanical skill to run it, and farmers need not fear their boy or hired man may injure a horse in running this power. A farmer can cut feed, &c., &c., on stormy days, in his barn, when he would not like to work his horses out of doors. A boy can cut feed enough in half a day, to last 20 head of stock all the next week, and most farmers understand that it pays to cut feed for stock; whether hay or corn stalks, either will go one-third farther, and do the stock more good than when fed without cutting, besides, what is not eaten up by the stock is in good condition for the manure heap, which is no small item. The saving in feed alone will more than pay for the power in one season, to say nothing of the other uses to which the power may be applied. This power is peculiarly adapted to small shops, when a more expensive power is not desirable. It will run a circular or draw saw, boring machine, lathes, planers, &c. We make 2 sizes, 2 and 3 horse. But one horse can be used in either and is enough for cutting feed for the ordinary farmer.

DESCRIPTION.

This power consists of a wooden wheel, hinged through the middle, suspended horizontally upon an upright shaft about 3 ft. 8 in. from the floor, by means of jointed guys. The wheel can be made very light as the belt acts as a tire upon it, and the draft is applied upon the rim, the horse working inside the wheel. The shaft turns with the wheel; its upper end runs through a plank on the scaffold, and a pin in the lower end works in a box on the floor. As the shaft only makes one revolution while the horse travels over 30 feet, there can be but little friction and but little oiling to do on any part of the power.



THE ADAMS HORSE POWER.

TO SET IT UP.

Lay the wheel opened on the floor, place the shaft in position, step your horse or horses into place, raise one side of your wheel, attach the guys on that side to the shaft, and then raise the other side in a like manner. Hitch your horse, put on the belt, and go to work. When done work, unhitch the horse, drop the wheel to the floor, lead out your horse, take down your shaft, and lay it on one side, fold the wheel together and set it one side, and your floor is clear.

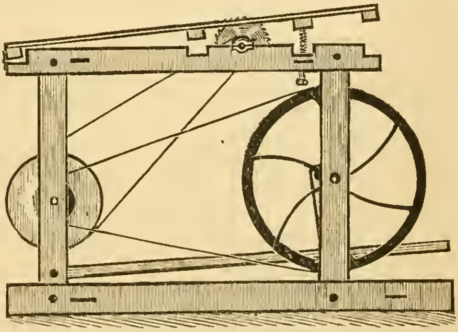
Prices. Two horse power complete, $50.00. Three horse power complete, $60.00. Manufactured by Harlow Brothers, Lancaster, Erie Co., N. Y.

You will observe that I have shown the power attached to a saw for hive making. This saw we give a sketch of opposite. Another wheel is added more than in the one given last month, in order to get a higher speed, and get a greater length of belt, than we get where the belt runs directly from the treadle wheel to the saw mandrel. This is what the inventor says of it:

> Perhaps you had better box all the shafts in babet metal. By the treadle's being hinged far back, the whole weight of the foot comes upon the treadle in the proper place to give most power. By 3 tramps with the foot, the saw can be raised to full speed. The fly wheel being very heavy, the saw is kept running quite a time after the foot is removed.
>
> H. SMITH.
>
> New Hamburg, Ont., Canada, Aug. 12th, '78.

Now I have arranged your shop and machinery so as to enable you to run by foot power or horse, as is most convenient. Let the pitman from the treadle to the crank be made of iron, in the form of a hook, that it may be readily unhooked, when you use power. The large wheel around the horse may be 15 feet in diameter, and it may be made a good deal lighter than our engraver has represented it. The rope is to pass between two pulleys in the upright post, and should then pass over a wheel about a foot in diameter on the treadle shaft. The large wheel on this shaft may be 3 feet in diameter; the two wheels on the counter shaft, perhaps 6 and 24 inches; the pulley on the saw mandrel, about 3 inches. This will give 48 revolutions of the saw, for 1 of the treadle wheel, and 15 of the treadle wheel for 1 of the horse power. An 8 inch saw should make about 3.000 revolutions per minute, to do the most effective work.

Now when you rig up your shop, be sure you remember the talk I gave you in Part II, A B C, about having all your tools put up, or hung up, on the walls, as our artist has fixed it. The figure 4 sliding piece for cross cutting, and for cutting bevels, he has shown standing up against the wall, but I would have that hung up on a good stout nail, also. All of these machines will run harder than the Barnes foot power saw, but they will, with power, do much heavier work. It is hard work to do much cutting by foot power, on anything thicker than inch lumber, and



H. S. SMITH'S FOOT POWER BUZZ SAW.

it is hard to cut very *much* of that, the best way you can fix it. Better have a horse, or a small engine. Foot powers are *very* handy for odd jobs.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

MR. AND NOT MRS. COTTON AT THE HEAD.

SOME years ago, I was in Maine, and while there, I met Mr. Cotton, of West Gorham, and had some conversation with him about his bees. Soon after, I saw a letter in the *Portland Transcript* complaining of Mr. Cotton for getting $15.00 for bees and a queen sent too late to be of any use to the purchaser. Later, I saw Mrs. Cotton's name in the bee journal, and supposed her husband was dead, and that she was carrying on the business. In the fall of 1876, I was called to Maine on business, and while there, I met a friend who lived near Cotton, who told me that Cotton was receiving considerable money by mail, using his wife's name to attract attention. So you see it is not a woman who demands showing up, but her husband. J. G. S.

Detroit, Mich., Nov. 11th, 1878.

FERTILIZATION WITNESSED, NON-SWARMING QUEENS, FERTILIZATION IN CONFINEMENT, ETC.

A FULL ACCOUNT, AT LENGTH, OF HOW FERTILIZATION TAKES PLACE.

EVERYTHING came to hand all right. Much obliged to you for the honey knife. My friend likes the paper very much.

Seeing you have a mint of patience with scribblers, I would like to answer or satisfy Mr. Peters, in July GLEANINGS, with regard to the office of drones. I really don't know what becomes of the coloring matter he speaks of, but know that drones have nothing to do with it. I have one Italian queen, 2 years old, who has never raised a drone, but she is very prolific in raising workers, which are perfect in all their labors in the hive, with the exception of queen cells; they look more like drone cells, only protruding a little farther. I never saw but two drones in that hive, and I think they came from some other quarter, for I put in a whole card of empty drone cells, but I never could see any brood. The bees would bring the honey down on that card to about the same distance as on the others, and the balance stood empty; so I concluded, so far as the work inside is concerned, that they get along without his presence. Three of her progeny are of the same "turn of mind;" they produce no drones, while one which met with a black drone seems to think plenty of drones are essential.

While drones are the subject on hand, I will add that I had the privilege of seeing her majesty and his honor meet in the open air, which settles in my mind another fact; viz., that confined fertilization will not do; for the queen must be on the wing, at a good fast rate, or she could not detach herself from the drone. When I saw this thing take place, the circumstances were these:

After a good many second swarms had come off, we had several days of very foggy, cold, damp weather, when, all of a sudden, it cleared up warm and pleasant, making swarming lively. One of my second swarms lit about 30 or 40 yards from the apiary. After picking out a couple of extra queens from it, I was attracted by an unusual noise overhead, and looking around, saw two large objects after a bee; I concluded it must be the bee hawk we read of, but as I came near the objects, I soon discovered my mistake, and also discovered that a drone on the wing is an active fellow.

I saw as many as 4 queens flying, 5 drones after one, 3 after another, and so on, down to one drone. I concluded to watch him; so I got right on his line of flight, for they flew back and forth between this swarm and the apiary, probably attracted by the noise of the swarm. It was a lucky move, for just as he came up he struck her so close to me that I reached out and picked him up; for he dropped, seemingly unable to fly, and minus the instrument that did the deed.

Then I watched the 2 drones, for they were still flying, although higher up, say 10 feet, in the air, and saw the same performance about 20 feet off; I found him in the same condition as the first. The first flew about 5 feet from the ground.

This destroys the old theory of the meetings being away up somewhere between us and the moon, or so high that nobody ever saw it. Hence my conclusion about confined fertilization.

Anyone wishing any further particulars, I will be pleased to answer. J. N. GILCHRIST.

Santa Barbara, Cal., Aug. 5, 1878.

Many thanks, friend G. I felt sure we should finally have the phenomena fully described, as you have given it to us. As you described your non-swarming queens first, which, by the way, is something worthy of careful thought, since such queens could easily be made to perpetuate this peculiarity, it seems you have not attached any great importance to your observations. The description you give, coincides exactly with the facts that have been collecting all the past season, and have been drawing us nearer and nearer to the full knowledge of the manner of the event as you describe it. I would not be too hasty in deciding about fertilization in confinement, for it may be possible for the insects to take wing enough, even in a small cage, to succeed now and then, as the account in the Nov. *Magazine* would seem to indicate. Why Mr. H. succeeded with almost precisely the same arrangement that I and hundreds of others tried in vain is more than I can tell. His plan of hatching queens in wirecloth boxes, over the top of a hive, was given in Sept. GLEANINGS for 1873; but, while it might succeed during the very hottest part of our summer weather, I soon gave notice that it was a very precarious method indeed. In spite of the thickest woolen cloth covering, a single cool night would often injure, if not spoil, the whole lot of cells. Nothing but the lamp nursery, or something equivalent, can answer the purpose of the heat of the natural brood nest. The plan has been several times revived since I first described it, but always dropped again.

THE A B C SCHOLAR THAT GREW SO FAST.

HOW HE INTRODUCES QUEENS IN WINTER.

YOUR postals are both received; also the queen, by express, came all right. I have taken out a queen from one of my swarms, and intend to introduce the Italian to-day. I shall keep the black queen until I find how the Italian is received. I am a thousand times obliged to you for the queen, and think you give me more credit on my letter than I deserve. I was willing to pay for the queen, but, never mind; I shall want a dozen of them in the spring; also rubber gloves, an extractor, an atomizer, and any amount of fdn., and shall know where to buy.

Our editor stood by when I took the queen from the express office, and it was a great curiosity to him; he never heard of bees being sent by mail or express, and questioned me all about it. I send you a copy of this week's issue of his paper; see included in ink marks what he says.

The weather was so cold when I received the queen that I could do nothing, I thought. Ice stood

½ inch thick on tubs of water; but I got out my old Indian tent and pitched it over a hive, built a fire in an old kettle stove, and all was tight, as I had a 2-inch pipe, used for fishing in winter, to carry out the smoke at the top. In an hour it was as warm as a parlor, and out came the bees singing lively. I gave them some honey drippings, and they commenced carrying it in. I then opened the hive, and in 3 minutes, I had the queen. I have had her out 48 hours now. My tent still stands, as the weather is still freezing, and to-day, I shall put in my new queen in the same way. I will report to you how I succeed.

I am thoroughly waked up in the bee business now (all done by GLEANINGS), and anything I can do, or anything I learn, I will write up for you. Keep me posted on new improvements, and money shall not be wanting. E. A. MORGAN.

Arcadia, Wis., Oct. 18, 1878.

P. S.—Yesterday, the 23d of Oct., I opened my hive and hunted up the queen. I found her all right. She had been in a week, and I found every empty cell filled with eggs just laid. I am overjoyed with my success. E. A. M.

Notes and Queries.

BEE STINGS.—When placed under a microscope, the sting of a bee presents a polish of dazzling beauty; but when placed on the end of a man's nose, it takes the semblance of a rat-tail file dipped in vitriol, bringing out words as rough as a grindstone.—*Cincinnati Breakfast Table.*

Warming your honey before the fire will not prevent fermentation, but rather increase it. Some American bee-keepers boil their honey when fermentation begins. Boiling may act for a time, and is probably the best thing that can be done to hinder the fermenting process. As soon as any of our honey begins to ferment we boil it, and then give it either to poor people or weak hives.—*Cottage Gardener.*

[Well, Mr. Cottage Gardener, there is some sound sense in your advice, but if I could not get the honey ripened in the hive so there would be no fermentation at all, I believe I would never extract any more. I can readily imagine how grateful the "poor people and weak hives" must be, after you have been to so much trouble to boil and "skim" it for them. If given to the bees in warm weather, they will ripen it themselves, better than any boiling and skimming I ever saw.]

I made a fdn. machine after Foster's plan, but it does not work. I do not see anything about making fdn. machines in A B C. Please state, in GLEANINGS, how the rolls are made. I am going to make one, if it takes all winter. I will write you soon, how my bees get along, also about my home made extractor, and foot power saws. I do not think E. A. Morgan deserved that $3.00 queen, if he charges $1.00 per stock for transferring. We only charge 50c. here, and that is enough; some do it for less. I have tried his mode of scattering the scent for bee hunting, and it does not do as well here as burning comb. J. L. Wolcott's tool-grinder is the boss. F. L. WRIGHT.

Plainfield, Mich., Nov. 11, 1878.

[It is a very nice piece of mechanical work, to make a fdn. machine to work nice, thin fdn., and I fear it would be of little use to you, if I should describe the tools, which, by the way, are quite expensive. I believe $1.00 is the usual price for transferring, but it should be done up nicely for that sum, everything cleaned up, the bees set to working, hives banked up with sawdust, etc. Glad to hear you like the tool grinder.]

I have got my bees all packed in chaff, and they are ready for the cold weather, but it is a job to pack them up in the fall and then unpack them in the spring. Now, supposing you were compelled to use only a two story hive, which would you prefer, a Simplicity or Chaff hive? [Chaff by all means, if I could pay for them.]

Will bees commence work in the upper story of a chaff hive, as soon as they will in the second story of a Simplicity? [Sooner; for reasons given further along.]

Can you get any more surplus honey from a two story Chaff hive than you can from a two story Simplicity? [Yes, because the Chaff hives are so much better protected from the changes of the weather, something as the bees in the house apiary are.]

If you were using the Gallup frame, what would be the least number of frames you would have in the brood department for surplus honey?

[It would depend altogether on the size of the colony. If there were only bees enough to cover 3 frames in July, I would put a frame of sections on each side, and make them store what honey they gathered in the sections. If a strong colony, they would need perhaps 8 or 9 frames, to contain all the brood the queen could produce. If you wish comb honey, make them store all the early, white honey in the sections, and give them so few brood combs, that they *must* put the surplus in the sections. For wintering you want the same arrangement, but substitute chaff cushion division boards for the frames of sections. I would work any kind of frames in the same way. The heaviest colony can usually be put on 8 Gallup frames, or 7 L. frames.]

Two swarms of bees came and lit in my apiary the 14th and 15th of Oct. I united them with my weakest swarms—the first uniting I ever did. I started in the spring with 6 swarms, increased to 13, and took over 400 lbs. of comb, and over 60 lbs. of extracted honey. G. H. DENMAN.

Pittsford, Mich., Nov. 12, 1878.

P. S.—You will find 10c. enclosed for trouble; please answer this when you have time.

[Our bookkeeper has placed the 10c. to your credit, subject to your order. We never take pay for answering questions.]

CHAFF HIVE SIDING.

Do you deem the matter important, of cutting the siding into such narrow strips as mentioned in the paper on "Hive Making?" REV. L. S. JONES.

New Philadelphia, O., Oct. 12, 1878.

[I do deem it important, to use strips rather than wide boards, in order to allow the moisture to pass off the more readily, something as it does in the old straw hive. The chaff needs thorough ventilation, or it will get damp and mouldy.]

HUBER ON A SECOND FERTILIZATION.

Huber affirms that in the whole course of his numerous experiments on the fertilization of queens, he had seen only 2 queens which mated more than once, before beginning to lay. L. L. LANGSTROTH.

Oxford, O., Nov. 18, 1878.

SENDING OUT QUEENS LATE IN THE FALL.

I have lost 12 queens out of 20 sent out this month; it is too late for this latitude. ILA MICHENER.

Low Banks, Ontario, Canada, Oct. 24, 1878.

[Why, my friend, we are still sending them out, this 21st day of Nov., and we have almost no losses. I fear you don't put them up right.]

PRACTICAL HELPERS.

I have just been reading W. Z. Hutchinson's experience, No. 11, concerning a home made foot-power buzz saw. Well, I read all his experience, because I know his writings are practical, but this one seems to be of unusual interest to me; the article appears to be got up for the express benefit of those whose means are limited, and I think there are many who perhaps may not have "more money than time," and who will thank him for his friendly assistance. From his description, and the illustration which your engraver has furnished, I think no one will have any trouble in getting up such a machine.

The article from the Rev. L. L. Langstroth, I have read with pleasure, for it was he who published in 1853, the first work on bees that I ever read, and to me, that work seemed to possess the charms of a novel. I have read and re-read it till I am familiar with nearly every page, and to-day, the world seems to be only verifying the prediction which he made 25 years ago (page 239), when he said, "Movable frames will, in due season, be almost universally employed, &c." I am glad that Mr. Langstroth is still living, and is yet able to contribute something to that occupation in which he has spent so many years. N. LUMAN GERRISH.

Nov. 16, 1878.

[We all feel, my friend, how deeply we are indebted to Mr. L., but I fear we have often forgotten to give him the credit he deserves.]

SHIPPING QUEENS IN NOV.

The queen you sent me came all right; not a bee dead. She is now giving her orders to a swarm of black bees. E. C. PARTRIDGE.
Pecatonica, Ill., Nov. 18, 1878.

I have made a public sale of my bees, 65 swarms, and they averaged me about $6.00 a swarm, on one year's time. Most of them were in good American hives. VIRGIL M. CHAPLIN.
Princeton, Ind., Oct. 16, 1878.

GOOD FOR MARYLAND.

The express men broke the cage, shivered the bottle, and killed one-fourth of the bees; and, strange as it may appear, the queen and remaining bees were in nice condition. As soon as they arrived, I put them in another cage with fresh supplies, and she was accepted in less than twelve hours, and is now all right.

My crop of honey this year, from 30 hives, was 5,000 lbs. Please put that in the Smilery; will give you full details if you wish. R. F. WIER.
South River, Md., Oct. 21, 1878.

["Smilery" was printed when this came to hand.]

PEACE AND GOOD WILL.

What a kindness of feeling bee-keeping promotes among all who are engaged in it? Though a stranger to me, I feel as if I were writing to some old acquaintance, and consequently add this note to my order.

I have been the pastor of the Presbyterian church in this place for twenty years; but, while thus attached to a sect, at present, I trust I have a charity as wide as the world, and which takes in the whole brotherhood of man. I know not by what name (ecclesiastical) you are called, and it matters not; your evident good will to men assures me that you are a brother and companion in the kingdom and patience of Jesus Christ. As such, I greet you.
JNO. W. WHITE.
Milroy, Pa., Oct. 15, 1878.

[Thank you, friend W., for the compliment you pay us, as a body, but we do sometimes quarrel, though I am sure we do not need to. Most cheerfully do I return the greeting, and may the denominations to which we belong never stand in the way of our all joining hands in doing God's work, wherever we find it to do.]

ADULTERATION OF HONEY.

A FRIEND writes me that a grocer recently said to him that he could no more sell golden syrups, because customers complained that they lacked sweetness, and made their teeth sore. This grocer knew nothing about glucose. The friend suggested that the lack of sweetness was due to glucose, and the injury to the teeth, to the sulphuric acid it contained. He also says that honey is adulterated in the same way, and that bee-keepers are feeding glucose to get comb honey. In another letter in the same mail, it is stated that rumors are afloat that the great yields of comb honey made by some of our leading apiarists were secured by the use of glucose. Now, I cannot think for a moment that this latter statement has any truth in it; I can scarcely believe we have a bee-keeper in our land, who would have the base impudence to attempt such a thing and run the risk of the exposure that must come sooner or later. I do not believe any body could sell such honey, in any quantity, if he did, it would surely come back to him, as did the bad syrup to the grocery dealer. Perhaps I am mistaken; if I am, we shall very soon know it. If any one knows of any very white comb honey that lacks sweetness, or color, let them find out where it came from. It will be an easy matter to find out if the individual has purchased glucose largely, or if he has been feeding it largely. If a bee-keeper refuses to show you all about his premises, you might have reasonable grounds for suspicion, but did any one ever know such a bee-keeper? I feel really ashamed to be talking about such things, and once more, I say, I cannot believe it. But if such things really are done, I will be as ready to hold up the offenders and give them their true name as Humbugs and Swindlers, as I ever have those who obtain money by false promises. The adulteration of syrups, I do not think rests on the shoulders of the bee-journals, but if any are engaged now in adulterating extracted honey, and we can get any sort of proof of the matter, let us have the facts by all means. The only sweets used in our household, are honey, maple syrup made by our own farmers, and the white coffee sugar of commerce. I have bought honey in the cities many times, to see if the newspaper stories were true, but I have never found any bad honey at all. Nearly all the dealers could tell me just where it came from, and opening the packages, I have always found it good. The only questionable honey I ever saw, was some sent me by friend Muth, that he picked up in the stores of Cincinnati.

Shall we jump at conclusions and accuse each other of dishonesty with half a reason, or shall we be slow to believe ill of our neighbors, and weigh carefully as we go? Give me the facts, and I will show you that I am not afraid, and if we need more efficient laws, there will be no trouble in getting them. Much of the honey of our Western States is very poor food, as I have had ample evidence, within the past few days; but this is by no means a ground for calling it adulterated. If grape sugar plays any part in the matter, show us how, by *practical work*, and not by unkind charges.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

OUR honey in 1 lb. sections is all sold out at 20c., some at 25. Between now and next June, judging from past seasons, we could sell nearly a ton more, if we had it. All the white honey we could cut out of frames has sold readily, as "chunk" honey, at 18c. We have purchased quite a number of hives from the West, and in transferring we found some new combs, well filled and capped over, which looked as if they would do very nicely, as "chunk" honey; on tasting of it, however, I concluded to feed it to the bees, for I should certainly not wish such strong honey for table use. Many of the hives sent are very heavy with honey, but none of it is at all like the honey we have here. If fall honey is always as dark, strong, and rank as these samples, I shall not feel so very badly, if we do not have it here. It is probably just as good for wintering, however.

Extracted honey wanted by Wilson Harvey, Brownsburg, Bucks Co., Pa.

I have a lot of extracted honey, and can't find sale for it here. A. E. HOLLOSTER.
Moscow, Pa., Oct. 14, 1878.

HONEY MARKETS.

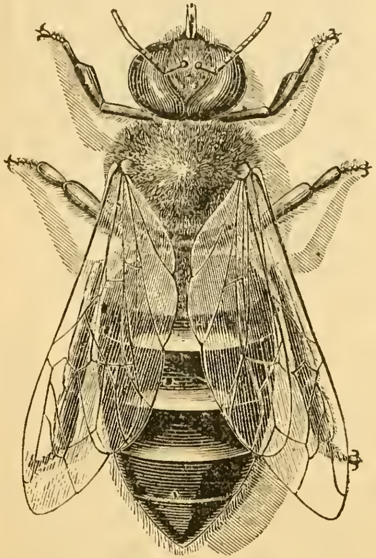
NEW YORK—The supply is large; the demand generally increasing. Comb, 10@15; Extracted, 6@12.

CHICAGO—Comb, 12@14; Extracted, 8@10; Beeswax, 25@27.

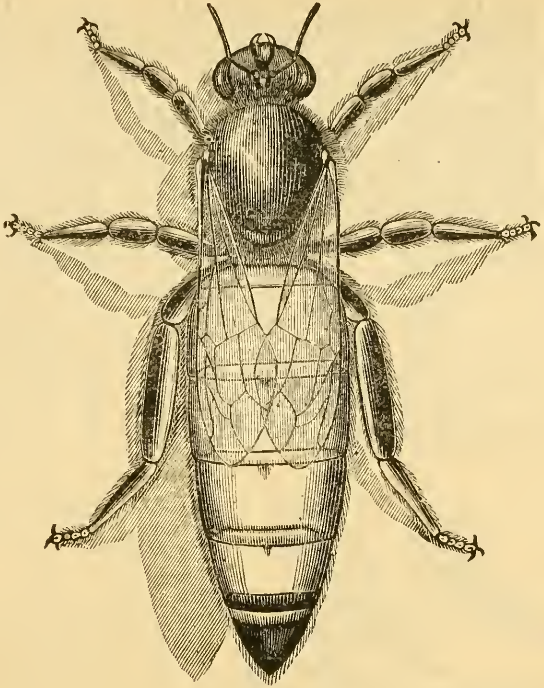
San Francisco quotations are for Comb, 7@16; Extracted, 4½@5; Beeswax, 25@27½.

Private advices of same date from reliable parties are for Extracted, 6@6½, with an upward tendency.

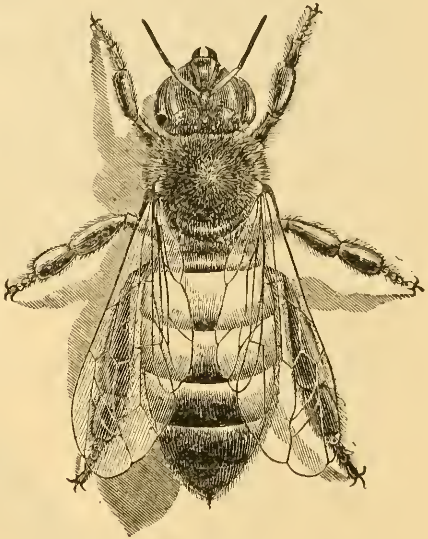
Better sell your honey at home.



DRONE.



QUEEN.



WORKER.

HOW TO TELL THE QUEEN AND DRONE FROM THE WORKER.

EVERY few days, a new A B C scholar wants to know how I tell a queen or drone from the worker bees. To answer this, I have given you a magnified engraving of all three, as above. The engravings were not made under my personal supervision, and are therefore not as accurate as I would like them. I suppose I am one of those individuals whom it is difficult to please, for I certainly am not pleased with any picture that I ever saw of queen, drone or bee. Our photographer has promised to make some photos of them next season, and from those, we shall probably get something more lifelike. The queen on the wing, given on another page, does very well for a dark queen, but we did not know how to make it look like a light Italian, without spoiling the general effect.

The drones are really much more unlike the workers, than shown above. You will never make any mistake, when you once get your eye upon them. The queen shown above, is supposed to be in the height of the laying season. In the fall or when not laying, they are, both in size and action, very much more like a worker. We find a queen very often, by the actions of the bees toward her, but the bees pay no attention whatever to drones, except to chase them out of the hives when they are no longer wanted. See DRONES, QUEEN, and WORKERS in the A B C.

DISEASE OF BEES.

QUEEN MYSTERIES, ETC.

I STARTED last spring with 50 stocks, and have increased to 91. They are in good condition for winter, and I have taken about 1700 lbs. of honey, about 1200 in section frames, the balance in extracted. I have two mysteries for you to solve. Now, don't take me to be a new beginner and a careless observer, for if you were acquainted with me you would know to the contrary. Early last May, I had a strong stock of Italians which showed signs of disease or starvation; on examination, I found plenty of stores and brood in all stages, and a fine, large yellow queen. I had a wide board in front of their hive, and on every warm day, workers, from 100 to 300, would come out on it, and walk about and shake as though they had the ague; some would die towards night, the balance during the night. I watched them with care, expecting they would all die. They so continued until June, when clover bloomed; then the disease disappeared and they became strong.

The other was a stock that was queenless in the spring. I gave them a frame of brood in all stages. They raised a queen and lost her. I gave them a queen cell; they hatched it and lost her. By that time they were very weak in numbers, but I thought I would leave them to keep the worms out of the combs until I could give them a young swarm.

When swarming began, I found eggs, larvæ, and sealed brood. In order to learn something, I left them alone, but kept a watchful eye over them. It soon became evident that the stock was all drones, and all in drone combs. I then took all the combs out in search for a queen; there was not more than one pint of bees, and I found no queen. I then cut all the drone combs out, and soon eggs appeared in the worker combs, which, in due time, produced drones; but of course they were small.

About the 1st of Aug., they were strong in drones. I then discovered sealed worker brood on the same cards with drone brood, all in worker comb; the difference showed plainly in the elevation of the cappings. It was a mystery; so I still watched them. In a few days, I opened the hive again (in Aug.), and the first thing that struck my eyes was a small, well marked, yellow queen, and she was laying vigorously, and has well filled her hive with bees. Of course, they had but little honey, so I have given them full combs of honey. The mystery is, where did she come from? and why does she remain so small?

If this should prove as repulsive to you as my person did last winter, when I made you a visit, I shall not expect a reply. I was not surprised, for I know I make an ordinary appearance to a stranger, on first sight, but my neighbors, who have known me for 40 years, say I wear well.

Success to the new shop, and the staircase. May the Lord prosper you and yours. D. L. BULER.

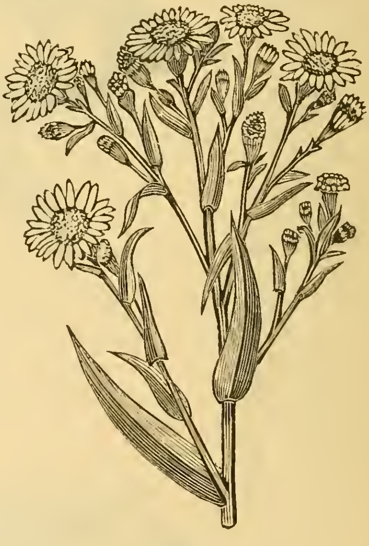
South Fairfield, Mich., Nov. 1, 1878.

Your first trouble was, I think, the same as the disease described in A B C, part II, under the head of DISEASES OF BEES, last part of it.

There are many queer things in regard to queens, and your case is one of the queerest. It looks very much as if they had a fertile worker at first, and that she was the mother of the small drones. Just in the hight of swarming time, did not some young queen get into the hive by mistake, and take the place of the fertile worker? About the time you looked, you saw the worker brood that had just been capped from the young queen, intermixed with the capped drone brood. The drones hatched out and in due time disappeared leaving you a colony of workers. I think this is the most likely solution of the matter. Another one is that the queen you supposed to be lost, was not lost after all, but, for some reason, laid drone eggs for quite a spell before she commenced on the worker brood, and may have laid both kinds of eggs, promiscuously for a time. Queens have been known to do this, and afterward settle down to worker eggs and no other.

I do most earnestly assure you, my friend, you do me injustice in thinking I did not want to see you. I remember you, and remember feeling sorry that I could not take even a minute to stop and talk, but that I was obliged to have you do all your visiting with the clerks. To you, I may have seemed comparatively idle, but my brain was doing all the work it could stand between meals and sleep.

I am unfortunately so constituted that, if I stop to visit, even a moment, and lose hold of the threads of business, I forget myself, and the result is a string of reports for the growlery, such as you all know about. I hate to have you disappointed, especially, when you come long distances to see me, but I see no other way than that you will have to do most of the visiting as a general thing, with the hands, even if I am doing nothing but walking around. In our new grounds, especial provision is made for visitors, and you are all most heartily welcome, to every part of the premises. Style or show counts very little with me, friend D., as you should know by even taking a look, at my poor self. May God bless you too, my friend, and forgive me, if I seemed rude when you came so far to see me.



ASTER.

Our engraver has just finished for the A B C, the above very lifelike representation of a branch of Asters. Some of the varieties are much more double than the specimens shown, and in walking through the woods a few days ago, I saw in the distance a specimen of such a brilliant reddish purple that it seemed too handsome for a woods flower. On approaching, I found it covered with bees; its petals were so thickly set, as to make it almost a double flower, and I hope to see a nice bed of them on our grounds in due time.

WHY QUEENS VARY SO MUCH IN COLOR.

FRIEND Cumings, in Oct. No., seems to be puzzled to know why an Italian queen will at one time produce bright queens, and at another, dark ones. We think it is because the mother queen contains different kinds of blood in her organism. It is a well known fact among stock breeders, that if a strain of cattle or horses or hogs or any other kind of stock contains any bad blood, that bad blood will crop out, and occasionally produce a scrub; and that no confidence can be placed in the strain, until the type becomes fixed by careful breeding from select specimens.

For instance, in the make up of the modern Berkshire, blood from a hog containing white in color has been introduced, and, although a well marked Berkshire is black, except face and feet, yet we occasionally see them with large white splashes on other parts of the body, and stock breeders tell me that it is no sign of impure blood, but the original white cropping out.

I once knew two bay mares bred to a black horse, with the hope of raising matches; the result was that neither colt resembled either parent, one of them having a white face, a mark not belonging to either horse or mare. They obtained these marks from some of their ancestors.

The same principle holds good in the breeding of fowls, and the human race seems to be equally true in reproducing the characteristics of their ancestors. Instances have been noted, in which particular physical marks have cropped out after having disappeared for several generations. A sixth finger has reappeared in the seventeenth generation.

Now how can we expect bees to depart from nature, and reproduce themselves in exact type. It is simply absurd. That there are very dark bees in Italy, we know; for even after selection, we get them here almost as dark (queens) as natives. Now, all the queens imported are mixed up in their ancestral relations, no doubt, with both light and dark strains, and, therefore, contain both light and dark blood; then shall we be surprised if this different blood reappears in queens of different color? Shall we expect order out of disorder? I think that a queen that would produce a uniform progeny would be a greater wonder.

Again, to show that a queen will not produce a uniform progeny where there is any dark blood, notice the offspring of a hybrid, or three-quarter black queen. You will find among them bees as black as any natives, others showing some one, some two, and some three bands, being as well marked as the best Italians.

I once had hopes of obtaining, by select breeding, a strain of bees that would come up to my ideal Italians; but I no longer entertain such a notion. We must be able to control the mating of our queens, and then continue select breeding through several generations, and do it ourselves, at home, and not depend upon imported queens, before we can expect uniformity. I do not pretend to say that these uniform bees and queens would be any better, if as good, as the imported; for we might sacrifice some more valuable qualities than uniformity, by such a course; but there are a great many, and especially beginners, who would rejoice over such an achievement.

JNO. W. BEATY.

Decatur, Ga., Nov. 4, 1878.

HOW TO MAKE BEES ACCEPT A QUEEN.

NOVEL MODE OF INTRODUCING.

I COMMENCED with bees in 10 hives, 5 Quinby frame hives and the rest box, and transferred them all right, into Simplicity hives. Two of the swarms, I put onto 2 and 3 frames, so you see that they were not large; the rest were fair colonies. I increased to 20 swarms, and had 3 first swarms and 1 second swarm that came out with a young queen that I gave them. From them, I have taken 539 lbs. of extracted and 111 lbs. of box honey.

I have raised 26 queens, of which I proved to be a drone layer; 3 were lost, I suppose, when they went out to meet the drones; 2 were lost in introducing. One of the two, I killed myself, I won't tell how, I guess.

I will tell how I introduced one. I had had her caged 10 days, and had tried her several times, so I thought I would experiment a little. I made two frames, put wire screens on them, and hinged them together at the bottom, just wide enough so a brood comb would go in; then I went to the hive, took out a frame of bees and put it in this wire cage, took them into the house and put the queen in with them, and sat down for war. This was a little after 7 o'clock, A. M. When the bees went for her, which they did very freely at first, I would give them some smoke. About 11 o'clock, they concluded that "discretion was the better part of valor," and let her have her own way. After dinner, I hung the frame in the hive, and had to go away to thrashing for 4 days before I could let them out. Then I took the frame out and hung it in the hive, and found her all right at night. I let another one out that same morning, that had been caged 14 days, and at night I picked her out of a ball of bees. If I had not accidentally killed her the next day, I should have introduced her in the same way as I did the other one.

I am quite sure these two swarms were hybrids, and the worst ones I have had. One of the other queens was about a week being introduced; the rest from one hour to about two days. The queen I bought of you, I tried about 4 days in one colony, then took her to a nucleus and let her go in about an hour. They seemed bound to supersede her though; I cut out a queen cell or two every week, for 3 or 4 weeks. Then they got too smart for me and hatched a young queen in the hive, but I found her when she was about 2 days old, and took her out. She was a large queen, but nearly black. I got her to laying, and last week, I united her and one other nucleus and the swarm from which I killed the queen together. I believe they have a queen now.

V. W. KEENEY.

Shirland, Ill., Oct. 29, 1878.

The idea of putting a whole comb in a cage is not a new one, for substantially the same process is given by our German correspondent, Gravenhorst (see page 177, Vol. V). The idea that you have originated, friend K., is smoking until they will be good to their queen; if I am correct, it took you about 4 hours to do this, but this was probably because they were very hard subjects. From the experience I have had, I think a queen could be introduced to almost any colony, if they were to be watched constantly with a good smoker, and smoked at every attempt they made to ball the queen. As a rule, I think a half hour would be sufficient to take all their viciousness out of them. The bee-easel, illustrated on page 329, would be an excellent thing, on which to rest the wire cloth frame containing the single comb, for as often as the queen got on another side, it could be turned around. If the bees in the hive were also smoked now and then, *perhaps* she could be set loose at once. Friend Hayhurst speaks of making bees accept virgin queens, by smoking them as often as they commenced an attack, and I am not sure but faithful work would succeed with any queen. Of course, this takes time, but it may sometimes pay to take the time.

QUEENS MATING MORE THAN ONCE; IMPORTED QUEENS.

MY son and myself noticed several instances in our Oxford apiary where queens certainly mated twice, and one where a queen mated *three* times. I never knew a queen to mate again, after it was evident from her increased size, that she had been fecundated, and was preparing to lay. I do not deny the *possibility* of such a thing, but I have seen nothing inconsistent in the idea that a queen whose spermatheca has been filled has no longer a desire for the male, just as many of our domestic animals lose it, very soon after they have conceived. I therefore think it very improbable that fertilized and laying queens, imported from Europe, ever again seek the male.

It is possible that reliable dealers may sometimes make a mistake in putting up their queens. In one instance, a virgin queen entered a transport box into which I was introducing bees with a fertile queen; being on the wing, she was probably attracted by the humming sound of the bees. If her entrance had not been noticed, she might have killed the fertile queen, and mated after reaching her place of destination.

A fertile imported queen may die in the transport box, and another be reared, if the first one has laid only a single egg. Persons who have been largely engaged in breeding queens are aware that well developed queens are occasionally reared in cells which are scarcely more prominent than drone cells. I send with this article a photograph of a piece of comb having two such cells.

The colony from which it was taken was prepared for the reception of a very choice imported queen. A few hours before this queen arrived, the bees swarmed, and as they clustered and did not return, I thought at first that some vagrant queen had joined them. On examining the combs, I saw how easily such cells might be overlooked. From one of them, a queen had hatched which led off the swarm, while the other contained a fully developed queen.

The cells from which these queens emerged are easily distinguished from the other queen cell on this comb. One might almost imagine that the bees made them on purpose to escape the prying eyes and destroying hands of their owner! Made cautious by such a narrow escape, I ever afterwards, before introducing a valuable queen, acted upon the principle of the old medical maxim, *Fiat experimentum in vile corpus*, and first gave my prepared stock a queen of little value. If she passed the ordeal unharmed, I was safe in concluding that there was no dwarf queen, fertile worker, or unnoticed queen cell, which might cause the loss of a more precious queen. This plan has this additional advantage, that if the inferior queen is not only well received at first but continues to be so, for a sufficient time to show that the bees will not injure her, we may safely conclude that the colony is in proper condition to receive a queen.

There is no necessity for a queen's seeking the male again, after she has begun to lay; for her spermatheca ordinarily contains a sufficient number of spermatic filaments to impregnate all the eggs she can lay in the natural course of her life. The life of the queen being so important to the prosperity, and often to the very existence, of a colony, the whole economy of the hive seems to point to an unmistakable design that she should run no extra risks. One successful wedding excursion gives the minimum of risk.

I can easily see how a queen reared on the voyage from Italy may be superseded, and the cell in which she was raised be so nearly destroyed by the bees, that it may be overlooked entirely, or be taken for an old cell from which a queen might have hatched months or even years ago. Those importing queens will therefore do well to give these matters very close attention, in order to protect their customers. While on this subject, let me call attention to the remarkable success which accompanied the first introduction of the Italian bees into California, being in such wide contrast with the ruinous losses incurred in the importation of these bees from Italy and Germany, into our eastern seaports. I cannot do this better than by quoting from the very interesting account given by Mr. A. J. Biglow. The account in full may be found, p. 390 of the Bee-Keeper's Directory, by J. S. Harbison, whose fame for enormous crops of honey is almost world wide.

"MR. J. S. HARBISON:—At your request, I have much pleasure in giving you what few items I have gathered since my connection with the Italian bees, and my experience with them.

Having received an invitation from Mr. S. B. Parsons to become his agent in California and Oregon, through recommendation of Rev. L. L. Langstroth, I left Sacramento on the first of September last for the Atlantic States.

* * * The Italians that I have brought out are of Mr. Parsons' importation; the queens were nearly all hatched in the month of September; some, however, as late as October.

I prepared one hundred and thirteen packages, with about one-third of a swarm of common bees in each package, and introduced Italian queens as soon as they became settled; the queens filled the combs with eggs. I engaged passage on the steamer Ariel, which left New York on the first of November, and arrived at Aspinwall on the ninth. I remained on the Isthmus ten days, and allowed the bees to fly five days.

Upon giving them their liberty, they immediately commenced work, gathering pollen and honey.

During these five days, I examined each package and removed all dead bees. I found the brood had all emerged from their cells, and the queens were again depositing eggs in abundance.

On the eleventh of November, one of the swarms deserted its hive and entered one of its neighbor's, which resulted, as I ascertained the next morning, in the death of the two queens.

I divided the double swarm, and returned a part of the bees to the empty package, and gave them both a comb containing eggs, and shut them up, and did not open them again until the thirteenth of December, when I found as perfect a queen to all appearance in each hive as I ever saw, and a large number of queen cells that had been destroyed.

I have been thus particular in giving an account of this rearing of queens *at sea*, while confined in their hives, as it may be of interest to naturalists. No water was given to my bees during the voyage.

I sailed from Panama, on the steamer Uncle Sam, on the twentieth of November, and arrived at San Francisco on the morning of the sixth of December; shipped that evening on the steamer for Sacramento, where I arrived on the seventh inst., one month and seven days from New York. I overhauled the bees as soon as convenient, and found one hundred and eleven alive, out of the one hundred and thirteen.

Many of the swarms had as many bees when I arrived at Sacramento, as when I left New York. I attribute my success to the rearing of so many young bees on the passage from New York to San Francisco. A. J. BIGLOW, Sacramento, Dec. 29, 1860."

L. L. LANGSTROTH.

Oxford, O., Nov., 1878.

Thank you, friend L. The idea that a queen might have been reared on the way is certainly one that never occurred to me. It may have been the case, but I can hardly see how, after all; for the frames are very small, and no eggs or brood of any kind are ever found when they reach us. In a few of them we did find fins of new comb that was probably built soon after they started, and eggs might have been laid, brood reared, and queens hatched. I say it might have been, but from the appearance of the little combs, it seems almost impossible. I am well acquainted with the way in which queen cells are sometimes built, and I have often found them, where others had declared there could be none; nothing indicated it to me, except the lump of wax that had no visible opening underneath. Cutting into it revealed the queen. Again; *laying* queens have been sent out from my own apiary, which, my customers have assured me, afterward flew out and were fertilized. It may be my customers were mistaken, but I have no doubt they were honest. It *may* be also, that we have, in a few instances, gone for a queen, to a hive that contained two queens, one laying, and the other not. If we should see the combs full of eggs, and then find a queen, it would be quite natural to send the queen off, as a laying one. In two instances this summer, we have found queens in hives where they were supposed to be queenless; one of these was a laying queen. I am somewhat undecided as to where the truth lies, but I have seen so many queens, imported and otherwise, after having been sometime confined in a cage where they could not lay, take wing and fly with almost precisely the movements of a virgin queen, that I fear we are going to find a second fertilization to be possible, even though it looks unreasonable. Facts are stubborn things.

BEE BOTANY AND ENTOMOLOGY.

I AM one of the A B C class in bee culture, and as such am very much interested in bees and bee plants. I send you herewith three specimens of fall flowers, numbered 1, 2 and 3, which are very common here, and should very much like you to give me the names of the same in next GLEANINGS, and their worth as bee plants.

No. 1 has been in very heavy blossom here for about a month, and is scarcely beginning to fail now. Bees have been very hard at work on it all this time.

No. 2 I suppose is golden rod, although I am not quite positive. If it is, of course GLEANINGS has already told me all about it. Bees very much prefer No. 1 to it, however.

No. 3 is considerably sought after by the bees, and they seem to get a good deal of honey from it, but this is also very much inferior to No. 1.

If you are not overrun with such questions from the ignorant, and can answer as above, you will very much oblige the A B C class of this neighborhood. N. H. ALLEN.

Kirkwood, Mo., Oct. 7, 1878.

No. 1 is one of the small asters, of which there are a large number of species, all valuable for bees.

No. 2 is one of the largest golden rods, of which there are also a large number of species. They are prominent bee plants. No country on the globe is more renowned than the United States, for the asters and golden rods which abound in autumn.

No. 3 is *Eupatorium altissimum*, one of the tall bonesets, of which we have twenty or thirty species, all valuable for honey. W. J. BEAL.

Mich. Agr. College.

I send you a bush that has been in bloom about a month. It grows about 2 feet high. Bees work on it all day, and it must be honey they get as I don't see anything on their legs. Please give the name of it. I also send the head or blossoms of what is called here golden rod. It commenced blossoming 6 weeks ago; some of the plants have ripe seed, others are just in bloom, and still others are just budding. We have had 5 or 6 frosts, but they do not seem to injure it. Bees are very busy on it. My bees have gathered more honey from it than from all other blossoms. The honey is a clear golden color, nearly the color of the blossom, and weighs 13 lbs. to the gallon. Would it pay to save the seed?

T. B. WILLIAMS.

Fort Scott, Kas., Oct. 8. 1878.

The name of the bush, of which a specimen was sent, is *Amphiachyris dracunculoides*. It has no common name. It is probably much like some of the golden rods and asters for honey. Bee-keepers, unless they are botanists, have but a faint idea of the great number and variety of plants visited by bees.

W. J. BEAL.

Mich. Agr. College.

I cannot say whether it will pay to raise golden rod or no. It furnishes much honey in some localities: in others (like our own), bees notice it little or not at all.

Enclosed, I send you a sample of a weed found here very plentifully, which seems to be quite prolific in honey, for the bees are constantly at work upon it. It is also very prolific in flowers, as I have just taken a small branch, six inches long, and counted 134 flowers upon it. I know of no name for it. What can you say about it?

A. A. FRADENBURG.

North East, Pa., Oct. 7, 1878.

The enclosed plant is *Aster cardifolius*.

W. J. BEAL.

Mich. Agr. College.

Enclosed find a bunch of bloom, from which the bees appear to be getting plenty of honey for present use. Please tell me the name of the plant.

S. H. LANE.

Whitestown, Ind., Oct. 8, 1878.

The enclosed plant is one of the small asters, of which there are many. W. J. BEAL.

Mich. Agr. College.

Enclosed, please find specimen of a little blue flower now in bloom here, which the bees are very busy on. It grows among the brush and hedges, and also on the edge of the ditch. It appears to be on a vine, and has a white bud which blooms into a beautiful, light blue flower. F. F. FELL.

West Baton Rouge, La., Oct. 17th, '78.

The enclosed flower is *Conoclinium cœlestinum*, or mist flower. I know nothing of the value of this particular plant for bees. It is nearly related to *Eupatorium* or boneset or thoroughwort. I presume it is good for bees. W. J. BEAL.

Mich. Agr. College.

Bees are still bringing in honey lively, from cleome and a wild flower, of which the enclosed is a specimen. What is the name? CHAS. E. MCRAY.

Canon City, Col., Sept. 23, 1878.

The enclosed flower is a species of *Coreopsis*, of which there are many; all are good bee plants, so far as I know. W. J. BEAL.

Mich. Agr. College.

CALIFORNIA.

I HAVE shipped my honey, at $12.50 per ton, in a sailing vessel, from San Francisco via Cape Horn to Liverpool, Eng., and will myself start in about a month, via Omaha and N. Y., to look after the sale of the honey, and learn what I can of the European honey market. Hundreds of tons have been lately shipped from this coast to Liverpool, London, and Hamburgh.

Our honey will not average quite as good and thick as usual this year, on account of so much rain and fog during the first half of the season.

I very narrowly escaped having my apiary (worth $3,000) burned a few days since, by a great fire in the mountains, and among the apiaries of the Sespe.

I suppose, since you have had a picture of a California apiary, you will not want one of my apiary, as you once suggested. I have now 490 hives nearly Simplicity style, painted white, the whole apiary making a nice honey comb, slightly inclined to the east. I have some grapevines growing nicely in it this year, but hesitate to plant many, for fear they will be too much in the road; especially, if we shake the bees in front of the hive in extracting.

My extracting house is in the center of the apiary; the lower half is wood, and the upper half wirecloth, affording the coolest retreat in hot weather, and giving a full view of all the surroundings. A 2-inch tin pipe, painted black so as to heat the honey for straining, conducts the honey from the extractor, for a distance of 125 feet, to the honey house or basement of my shop, at the lower side of the apiary, into a tank holding 3,000 lbs., with measuring faucet to draw off the honey.

The crystal waters of the Sespe flow from north to south among the rocks, just east of the honey house; the mountains rise on the other three sides of my three acre plat, now dotted with elder trees, some of them nearly as thick as a man's body, and looking like a fifteen year old apple tree. They are too big to make popguns of, as we used to do in the East from the largest stocks of them, which grew and bore berries in the fence corners; but I am about digging them up to give place to an orchard of choice fruit trees.

I was fearful that my combs would melt in so warm a cove, but as I use enameled cloth on the hives, when the weather becomes hot I fold the cloth forward two inches from the rear, placing a 2-inch stone on the fold under the lid, thus making a current of air through the hive and between cover and cloth.

Sitting on my three wheeled wagon, with a canopy overhead and tools around me, I work all day, cool and easy.

We think we get along very well with tin rabbets, without metal corners. My bees increased this season from 173 to 400 colonies and produced 45,000 lbs. of honey.

I must have more help next year, and will test how it will do to keep 400 hives with their increase in one place.

You should have J. G. Corey, one of our best informed bee men, of this place, to give his experience this year with foul brood on a large scale, how it was introduced, and what about the purifying acid. He has also just completed a smoker which you may have to conclude surpasses Novice's. I think I will take one to the editor of the *B. B. J.* R. WILKIN.

San Buenaventura, Cal., Oct. 6, 1878.

INSTINCT OF BEES.

THE theory, that the instinct of bees is "the result of habit and of accumulated experience," is liable to serious objections. There is no evidence to support it. It is not known that bees are any wiser now than they were thousands of years ago, or that they build their comb or do their work in a different way. Again, unless the primitive bees had been adepts in all the arts of the bee-hive, their race would soon have become extinct, and there could have been no "accumulated experience." But what is still more conclusive is, that the queens and drones, the progenitors of worker bees, have no experience in arts of productive industry. The drones, the sires of all working bees, are themselves perfect idlers. If they had to gather their own food, they would starve to death in the midst of the honey season. The little worker is surely not indebted to its lordly father, for any of its wisdom or energy. The queen, or mother bee, is a noble and dignified lady, the most important personage in the family. She is no idler, but she does just one thing. She deposits eggs, sometimes at the rate of two thousand every twenty-four hours; but of comb building, brood feeding, queen raising, ventilation, gathering honey, pollen, and propolis, she knows nothing, does nothing, and consequently she can have no "accumulated experience" in these things, to transmit to her children.

But the "little busy bee which gathers honey all the day from every opening flower" and does all the work of the household, does not reproduce its kind. It derives its existence from parents unlike itself in form, instinct, and habits, passes a few short weeks in busy work, shows itself an adept in many curious arts, and then passes out of existence without any effort to propagate its kind. Thus the wisdom of the worker bees can by no means be the result of the "accumulated experience" of worker bees in ages past, because they are in no way whatever their descendants, though they are all from one common stock, and have received a common nature and instincts, which develope into the same life of skillful and well regulated industry.

JNO. W. WHITE.

Milroy, Pa., Oct. 28, 1878.

Thank you, friend W., but there is one serious trouble in the way of attempting to reply to your letter. You have finished the subject, and set up an impenetrable wall, as it were, by point blank statements. I know it is not an unusual way of speaking, but yet I could not help watching all the way thro' your letter, for some single expression, such as "Am I correct," or "If I have made no mistake." If *I* have made no mistake, my friend, you are under a misapprehension, in part at least. Perhaps we are both somewhat in error. We all know that we can change our bees greatly, by selecting particular queens to breed from, and that we can change the drones, queens, workers, or all, at pleasure. Friend Pike has developed a strain of bees he calls Albinos, just because the worker bees have a whitish band near the yellow bands. The queen looked not different from other queens, but one of her daughters that mated with a hybrid drone, produced bees with the white bands much more distinct than on the workers from the mother. Had I kept on selecting queens that produced bees with the most clearly marked white bands, every time, I should soon have had bees looking like white ringed hornets. As no particular good could have come of this more than to satisfy curiosity, I did not carry the experiment further. Again; I have mentioned a colony that produced drones with cherry-red heads. Had I cared to perpetuate this peculiarity, it would have taken but few generations, perhaps one season only, to have got red headed drones without fail, by simply selecting the mothers that produced the reddest heads. Finally, a great many of us have tried selecting the yellowest queens to breed from, and we have had no trouble in getting queens a light yellow, from "head to foot." The most of us soon discovered that we had chosen light color, at the expense of honey, and so we sent back to Italy, for queens that had been selected by Nature's stern law, to produce workers that gave the most honey. Italy does not produce honey, as does our country, and the bees have therefore to work or starve: the laziest do starve, and the best, or rather the hardiest and best workers, survive and are sent over here, to revel in the abundant pasturage of our climate. In the course of time, they get lazy again, because they can ordinarily gather 4 or 5 times as much food in a season as they need over winter, and then we have to send for a new importation. This last point is merely a suggestion of mine; you can accept or reject it as you choose. I cannot for a moment doubt that our Heavenly Father has so arranged things, that bees, fruits, and flowers (as well as other things), shall, to a certain limit, be moulded by us according to our wants and wishes. See Gen. 1; 25.

As a new generation of bees can be secured almost every three weeks, they are, to an astonishing degree, susceptible for this purpose. Suppose we wish to raise the white banded bees; we would get a stock whose bees showed this peculiarity somewhat, raise a lot of cells—say a dozen, and one queen of the dozen would be almost sure to produce workers showing the desired trait still more. As soon as this queen lays, start a dozen more cells, selecting one from the dozen as before. This process can be repeated several times the same season. We can also aim to get extremely industrious bees, as well as to get prettily marked ones; or we can work for very gentle bees, or for almost any trait we choose. This is not theory alone, for the matter was experimented upon before we ever saw Italians, showing that bees could be changed, like a flock of ducks, from white to black, or *vice versa*, by patience and faithful attention. Do not the gardeners and florists change their fruits and flowers? and that, too, in a single lifetime? Who can say what changes might be wrought, in even a thousand years? I have no conception of what the honey bee was when God first created it. I can readily imagine that the law of capillary attraction might have fixed the size of the cell to hold the honey, very nearly what it is now, but it seems to me, as they made their way from the warm climate in which they are supposed to have existed originally, that their disposition and habits would be changed very much. It seems quite likely that their habits of industry came from seasons of drouth and cold, as well as the sharp contention and the disposition to rob that spring from these seasons of scarcity. After feeding a colony a hundred lbs. of honey, or more, they get lazy and listless, and seem to care little for the inroads of robbers, where food is so plenty and cheap. Do not these seasons of scarcity make them more industrious? Where the bees have honey the year round without stint, are they so economical? And do they have that fierce energy that characterizes them, when the yield first opens?

Should we go into the shop of some mechanic after he is gone, we would have little trouble in deciding what kind of work he had been doing, by the sight of his chips and tools; and in the study of botany and entomology, I have been lost in wonder, amazement, and reverence toward God, in contemplating the evidences all about, of the changes now taking place. The flowers show the rudiments of organs that evidently once existed, but are now being lost. The organs of the flowers are constantly changing; the Spanish needle on our roadside is destitute of petals, but in the swamps, a few miles away, the petals are so largely developed as to make a most beautiful flower. Here nature has wrought the change. Peach trees raised from the seed of the old, common sorts have a large, beautiful flower, but the varieties that have been so rapidly disseminated by budding, by the nursery men, have, in a few short years, lost their petals, and lost their honey. I suggest that it is because the seeds are not now used and therefore the plant produces neither the showy, conspicuous petals to draw the bees, nor the delicate nectar. This has been man's work, or the result of man's selection. But a few days ago, a friend brought some fish without eyes from the Mammoth Cave; bugs are found with wings that are never used for flight; snakes have rudimentary legs; and all nature is strewn with evidences of these wonderful changes. The locust, the pea, and clover have a leaf, flowers, and seed so similar that I believe botanists have classed them all in one family. After examining the three, and studying them over, it looks reasonable to me, that the tree, the vine, and the plant, all sprang from one common parent, and have taken their present forms through ages of just such changes as I have mentioned. I know that God wishes me to be ever busy and ever growing, and I hope I am growing daily nearer to Him. The thought that He is in all the affairs of this world of changes, ever busy with us, and for us, is the happiest conception I have ever had of Him, while studying Him and His works. Even if we think differently, we unite in loving and reverencing Him, do we not, my friend?

A LETTER FROM SIAM.

MR. A. I. ROOT, *Dear Sir:*—Through the kindness of my friend of the firm, Barnes & Co., I am receiving your periodical on bee culture. There are no bees or honey raisers in this land, and I think it not possible to cultivate them; still, I like to read your magazine. I like the spirit. I value the varied information and good practical hints on various subjects which I find in it. I like your frank, familiar way. It does one good to read your cheerful words. Above all, I like the moral tone, and decided Christian spirit of your paper. In the last No. (June), I read the criticism of J. D. W., who advises you to leave out the "religious" part, and I enjoyed your reply very much. You are right; I am glad to see you have the *Root* of the matter in you.

If business men would carry their religion into their every-day life, and make it a part of their *work*, the men of the world would very soon see the value of true Christian life and practice founded on the Bible. I doubt not that opposers of Christianity would be glad to see that subject dropped—see it left out of all the affairs of life. They would gladly ignore the whole subject, and desire not to have it intruded on their notice in any way. They are like the late King of Siam, who did not wish to hear of death, and issued an order forbidding anyone about the palace to speak of the subject. But even this did not exclude the stern messenger. Death came at last. He was called at a time when he was quite unwilling to go.

But perhaps you may ask, as some others have done, where is Siam? and what are the people like? One or two words will describe their condition socially and morally. They are heathen and idolaters. I have been doing what I can for nearly 20 years to teach them to worship the living and true God, and put their trust in Jesus Christ; and I think I have made some progress. A church of 60 members; schools numbering 150 children; 3 native preachers, include part of the visible results of my efforts at this station (Petchaburi), during that time.

The Siamese are just waking from the sleep of long ages. They are seeking knowledge. The King has encouraged education in our schools here by a generous gift of $1000.00 toward our new school building. He is now planning for the education of his people, by the organization of schools. He has requested me to take charge of the educational work of the country, and we hope for great results. But I must close. I wish you all success.

Yours very truly, SAM'L G. MCFARLAND.

P. S.—I have profited by reading your directions for putting a circular saw in order, filing, &c. I think I have got many useful ideas from your paper. I have one of Barnes' hand circular rip saws; but we have difficulty in making it cut true. Whether the trouble is in the gauge, or the set of the saw, or the filing, I can not find out. I set the gauge so that the saw will cut true, and it does all right till the saw needs filing. After filing, it is just as before. I find, without changing the *set* or the *gauge* in the least, that the wood crowds on the saw and becomes tight, or pulls away from the gauge. Now what can the trouble be? Is it in the filing? or does the gauge require to be moved to suit the saw again? If the trouble is in the filing how can I know it? and how can I rectify it?

We are amateurs, like many of your pupils, and must look to you for light. I am much pleased with Barnes' machinery, but it takes us some time to learn to use it. The mortiser is the most satisfactory machine we have. It literally "astonishes the natives." S. G. M.

Bangkok, Siam, Asia, Sept. 3d, 1878.

Thanks for your kind letter, my friend, but I must think that wherever man can live, there bees may thrive. Has bee culture ever been intelligently tried? You surely have honey producing plants?

Your illustration from the King is one of the most powerful ones I have ever met. I, too, used to shun funerals. I can not tell you how I rejoice to hear of your work, and that even the King has been interested in it.

Your trouble with your saw is in the filing, and I think practice will enable you to remedy the trouble. File every other tooth first, then turn your saw around in your vice, and file the remaining ones, and you will perhaps overcome the trouble you mention. Have you proper files?

May God continue to bless and prosper you, my brother, in your far away work.

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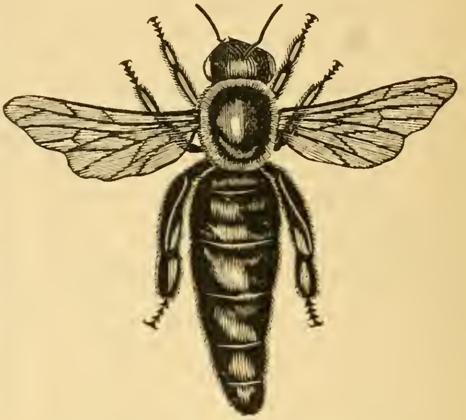
In our last number, the subscription clerk advertised for Vol. V, when she meant to advertise for Vol. III. The blunder has taught her a pretty severe lesson, for she volunteered to send back all that came, at her own expense. Luckily for her, only a few, comparatively, would sell their last year's numbers, even when offered 50c more than they paid for them, and many of those who did send them said they could hardly think of parting with them, were it not so hard to get money.

Queens; Continued from last month.

AGE AT WHICH VIRGIN QUEENS TAKE THEIR WEDDING FLIGHT.

Our books seem to disagree considerably on this point, and I am afraid that many of the book-makers find it easier to copy from the sayings of others, than to make practical experiments. It has been variously stated, at from two to ten days; some go as far as to say that the queen goes out to meet the drones the day after leaving the cell. It is quite likely that some difference arises from the fact, that queens often stay in the cell a day or two, after they are strong enough to walk about. Sometimes a queen will be found walking about the combs when she is so young as to be almost white; I have often seen beginners rejoice at their beautiful yellow queens, saying that they were yellow all over, without a bit of black on them; but when looked at again, they would be found to be as dark as the generality of queens. At other times when they come out of the cell, they will look, both in color and size, as if they might be three or four days old. The queens in our apiary generally begin to crawl about the entrance of the hive, possibly looking out now and then, when 5 or 6 days old. The next day, supposing of course we have fine weather, they will generally go out and try their wings a little. These flights are usually taken in the warmest part of the afternoon. I know of no prettier or more interesting sight to the apiarist, than the first flight of a queen. Perhaps a few hours before, he had looked at her, and been disappointed at her small and insignificant appearance; but now, as she ventures out cautiously, on the alighting board, with her wings slightly raised, her tapering body elongated and amazingly increased in size, he looks in wonder, scarcely believing she can be the same insect. She runs this way and that, something as does a young bee, only apparently much more excited at the prospect of soaring aloft in the soft summer air. Finally she tremblingly spreads those long silky wings, and with a graceful movement that I cannot remember to have seen equalled anywhere in the whole scope of animated nature, she swings from her feet, while her long body sways pendulously, as she hovers about the entrance of the hive. When I first beheld one on the wing, there was a queer feeling of having seen something similar, years ago, and I might have reasoned that I was remembering something my father or grandfather had seen, did I not know that none of them were ever bee-keepers. Below, I have tried to give you a picture of



A VIRGIN QUEEN UPON THE WING.

A worker bee hovers about the entrance and carefully takes his points, when he tries his wings for the first time, but she, seeming to feel instinctively that she is of more value to the colony than many, many workers, with the most scrupulous exactness, notes every minute point and feature of the exterior of her abode, often alighting and taking wing again and again, to make sure she knows all about it. I remember that when I saw one, for the first time, go through with all these manœuvres, I became impatient of so much circumlocution, and if I did not say, I felt like saying,

"There! there! old lady; you certainly know where you live now; do you suppose a fellow can stay here all the afternoon, neglecting his business, just to see you start off on your first journey in life?"

Bye and bye, she ventures to circle a little way from home, always bringing back soon, but being gone longer and longer each time. She sometimes goes back into the hive satisfied, without going out of sight at all; but, in this case, she will be sure to take a longer flight next day, or a half hour later, in the same day. During these seasons, she seems to be so intent on the idea she has in her little head, that she forgets all about surrounding things, and instead of being frightened, as usual, at your opening the hive, she will will pay no attention to you; but if you lift up the comb she is on, will take her flight from that as well as from anywhere else. I have caught them in my hand at such times, without their being frightened at all, but as soon as they were allowed to go, they were off, as if nothing had happened. After she is satisfied that she will know the place she ventures out boldly, and from the fact of her circling right up in the air, we have, until lately, supposed that fertilization took place above the ken of human eyesight. This has recently been shown to be a mistake, I think. After a successful flight, she returns with the organs of the drone remaining attached to her body. See DRONES. This is a white substance, and is frequently so large as to be plainly seen while she is on the wing. I should think a queen is usually gone half an hour, but I have seen them return fertilized after an absence of not more than 10 or 15 minutes. This accomplished, she goes quietly into the hive. The bees are much inclined to chase after her, and they sometimes pull at the protruding substance, as if they would drag it away, but I am inclined to think it is eventually absorbed into the body of the queen. In looking at her the day after, all the trace of it you will observe, will be possibly a shriveled thread. In one day more, you will, as a general rule, find her depositing eggs. I presume the average age at which our queens are laying, is about 9 days; we generally wait 10 days from the date of hatching, and are then pretty sure of finding them ready to send off. Between the fertilization and the time the first egg is laid a remarkable change takes place. After the queen has been out and fertilized, her appearance is much the same as before. She runs and hides when the hive is opened, and looks so small and insignificant, one would not think of calling her a fertile queen. A few hours before the first egg is laid, however, her body increases remarkably in size, and, if an Italian, becomes lighter in color, and instead of running about as before, she walks slowly and sedately, and seems to have given up all her youthful freaks, and come down to the sober business of life, in supplying the cells with eggs.

THE MEETING BETWEEN THE QUEEN AND DRONE.

Within the past year of 1878, many new facts have been furnished in regard to the matter. It seems that the drones soon spy out the queen as she is circling about among them, and pursue her, much in the way you have seen bumble bees chase each other about in the air. As the queen starts out, she curves her body backward in rather an unusual way, as you see by the cut of the queen upon the wing. I have long supposed that there was some especial purpose in this, and recent events seem to corroborate the idea. The meeting of the two insects takes place while they are on the wing, and as they are always seen whirling rapidly about each other, it seems rather difficult to determine, just how fertilization is accomplished, unless the bodies of both are curved considerably out of the usual position. The drone, probably, takes much the attitude of a worker bee, in the act of using his sting, the peculiar curve of the lower part of the queen's body favoring this. The act accomplished, both insects use their wings in such a way that they revolve in opposite directions, and the separation is thus effected in much the same way as a worker bee withdraws his sting, when allowed to do so at his leisure, by twisting around continuously, as if he was unscrewing it from a board. The organ of the drone is so firmly implanted in the body of the queen, that it is torn from his body, with all attachments, very like the way in which a bee loses his sting. It has been stated that the drone expires with a sudden contracting of his body, as if he was struck by lightning. I am inclined to think this a mistake, and that he sometimes crawls about a minute or more, and doubles up as he dies, as a queen or worker does. I would be glad of reports from those who have witnessed these phenomena, that I may make corrections in what I have stated, if I have got anything wrong. Nature, to make sure the drone organ is not withdrawn, has furnished a wonderful piece of mechanism, that comes into play at just the right moment. I will try and explain it to you. Under the article DRONES, I mentioned to you that if the body of a drone is pressed in a certain way, just as he is leaving the hive, the body will sometimes burst open, in a manner something like the popping of corn, throwing out the male organ. Suppose you take the finger to a glove, and push in the tip, as if you were going to turn it inside out; well, now if you should blow forcibly in the glove, or even compress the finger when full of air, this tip would be violently thrown outward. It is supposed that the body of a drone is formed something in this way, and the extrusion of the organ is occasioned by a powerful muscular contraction of the rings composing his body, while under the influence of such strong excitement. Well, now suppose we liken the body of the queen to another glove finger, having a transverse cut across the end of it. This slit is deep enough to allow the body of the queen to open in two parts; and the opening is capable of being extended to nearly the whole size of the body of the queen. When the drone, while on the wing, succeeds in striking the point of his body partially into this opening, the sudden muscular contraction takes place, and his body is, in a measure, turned inside outward, projecting the male organ with all its attachments into the body of the queen, and perhaps liberating the seminal fluid at the same time. Now, nature has provided two queer shaped horns that project from the organ of the male, fitting the interior organ of the queen; these are seen very distinctly when the drone is pressed, as before mentioned. These horns alone would seem to be enough to prevent withdrawal, but nature, to make sure, has furnished them on their outer surfaces, with a sort of horny scales, or minute hairs, that stand something like the beard on a head of wheat; they can go forward but never backward, and therefore there is no way but for the poor drone to lose his life by having it torn out of him, in an instant. Nature has also made provision for the easy separation of these organs by placing them loosely in his body, and so that after they are thrown out by a no very great pressure, the attachments, which are only a membrane, give way readily, by the twisting process I have described.

Why is nature thus, as it would seem to us, needlessly cruel? Well, I presume there is some very good reason, even if we can not now see it. The single fertilization of the queen must, for very good reasons, last for years, if not for the whole of her life. This being the case, it would not be strange, if such a draft on the constitution of the male were greater than he could stand, and be serviceable afterward for the purpose for which he was created. Nature, to make all things sure, seems to have found it fitting that he should expire in the act; as he has no other purpose of existence, so far as we know, is it not just as well?

It has been suggested that this act can only take place while both sexes are on the wing; that unless the body of the drone were inflated with air, as when flying, this wonderful bursting asunder of his organism, like the mature seed pods of the touch-me-not, could not well take place. I believe instances have been observed when the meeting took place where the insects were confined, yet had liberty enough so they could buzz about or whirl about each other; but, as a general thing, unless the parties have the liberty of the open air, and have perfect wings, fertilization is impossible. Where you have reason to think the wings of a queen are not absolutely perfect, you can test the matter by throwing her up in the air in front of her hive. I have done this many times with queens that did not lay when about two weeks old, and they are almost invariably found to be unable to rise easily in the air. It has been said that queens with bad wings are sometimes found producing worker brood; I have never found such a case, but the testimony from careful and reliable parties seems to indicate that it does sometimes happen. One who is inexperienced in these matters would hardly think of the many chances there are to be mistaken; it is now found to be a rather common occurrence for two queens to be in the same hive, and the worker brood credited to the queen with imperfect wings from birth, may easily belong to another. Again; the bees often attack a queen when returning from her bridal trip, and if they do not kill her, maim her, by biting off a wing, a leg, or perhaps both. If you should find a young queen with half a wing, or perhaps only a stump, producing workers, how many of you would not decide at once, that she must have been fertilized in the hive? I once had an Italian queen nearly black, that produced beautiful yellow workers. She was missed, and finally turned up in a neighboring hive, which, to my astonishment, was found to be Italians, instead of hybrids. She was found busily at work, but possessed scarcely the vestige of a wing. Bees often mutilate the wings of queens which are being introduced, and sometimes, during a scarcity of honey, attack their own queens and mar their appearance in this way. I think before deciding, it will be well to await further facts and investigation. See ARTIFICIAL FERTILIZATION.

SHALL WE CLIP THE QUEEN'S WINGS?

At one time, I was strongly in favor of clipping the wings of all queens, just as soon as they were found laying. As they often got out in the grass during swarming time, and got lost, when they would probably have been saved if they had had their wings, I afterward concluded that I did not want the wings of my queens clipped. In selling queens, since then, very many of them have flown away while being introduced and I have begun to decide that clipping them is perhaps the less of the two evils. To prevent them from flying, it has been suggested that they be daubed with honey, which the bees will soon lick off; this did very well, until some one reported a queen that had to be re-caged. The honey dried on her body and killed her. Just now (Nov. 11th, 1878) the question is also being discussed, as to whether a laying queen ever leaves the hive for a second fertilization. The facts indicate very strongly, that imported queens, and others that have been a long time confined so that they can not lay, sometimes do this. Clipping will certainly prevent this, although it may result in the loss of the queen. I think I prefer the chance of loss, rather than that of a tested queen turning hybrid, and I will, therefore, until farther notice, clip all wings before sending them out. To make it sure that there can be no flying, I would clip the greater part of both large wings; the small wings, being perfect, although smaller, will give her a symmetrical appearance, while cutting off both wings on one side, always makes her look ever afterward, very much like a cripple. If a queen is ever so fine, few people can see her beauty, when she has two long wings on one side and none on the other.

CLIPPING QUEEN'S WINGS.

For this purpose, you want a pair of slender pointed, embroidery scissors. They must be just as keen and sharp at the points, as they can be made; for it will never do to have the wing of a valuable queen double up, or catch so as to frighten her out of her little senses. With good scissors, you can lift a wing and clip it off without her hardly knowing it; but where two are to be clipped, it may be well to adopt the plan given by one of our feminine contributors, especially, if you are nervous, and inclined to be fidgety in doing such work. See page 183, June No., GLEANINGS. How to manage during swarming time, with clipped queens, will be considered under SWARMING.

HOW QUEENS LAY TWO KINDS OF EGGS.

That they do lay two kinds of eggs, I think few are inclined to dispute, since the experiments with the microscope have decided the matter so clearly, as given under DRONES. Suppose a young queen goes out to meet the drones so late in the fall, or so early in the spring, that there are none; what is the consequence? Well, sometimes she will never lay at all; but, frequently, she commences to lay when 3 or 4 weeks old, and her eggs produce only drones. In fact, she can produce no other eggs, having never been fertilized. How shall we distinguish such queens from fertile ones? You can not decide positively concerning them, by any means that I know of, until their brood is ready to seal up; then you will know, by the round, raised caps of the brood, like bullets laid on a board, as I explained under DRONES. You can give a pretty good guess, by noticing the way in which she lays the eggs; if they are few and scattering, and sometimes, or often, in drone cells, coupled with the fact, that she did not commence laying until two weeks or more old, you would better not send her off as a dollar queen, until some of her brood is sealed over. A young queen, if properly fertilized, never, or very rarely, lays an egg in a drone cell, and when she commences to lay, she fills cell after cell in regular order, as men hoe a field of corn; her work also has a neat and finished appearance that says at once to the practiced eye, "You are all right."

Now, my friends, do not think me contradictory, when I tell you that a young queen sometimes commences with all, or nearly all, drone eggs, and, after awhile, lays entirely worker eggs as regular as one might wish. I do not know why this is; perhaps, she has not yet got used to the "machinery", or does not "remember" distinctly just how her grandmother did it. Once more, my friends; you must bear with me, when I tell you that any queen, the best one you ever saw, is liable, at any day of her life, to commence, on a sudden, laying drone eggs altogether, or only in part. I wish you to remember this, that you may be more charitable toward each other, in your dealings. A nice laying, young queen, taken from a hive, and shipped to a distance, may prove to be a drone layer shortly after, or immediately after, she is received. Such things are not very common, but they do occur. In an apiary of 50 or 100 hives, I should expect to find one drone layer, on an average, each spring. During the summer, perhaps one more will be found. It may be that the queen was not fertilized sufficiently, if I may use the term, and that the supply of spermatozoa gave out, while she was in full vigor, thus reducing her to the condition of a virgin queen. Microscopic examination has shown an entire absence of spermatozoa, in at least one or two instances, where queens of this kind were killed and dissected. Similar experiments, given by Langstroth, show that the spermatozoa may be chilled beyond recovery, by freezing the queen, and yet the queen herself may be resuscitated. I think it likely, that hardship and being shipped long distances may produce the same results. Do not think I am going to excuse those who sell queens, and let the blame for unprofitable queens slip off their shoulders; on the contrary, I think they had better make up their minds to render a full equivalent for all the money they receive. If a queen proves a drone layer before the purchaser can receive any benefit from her, I think another should be sent. Of course, I cannot give a rule for settling all such matters, but I would most earnestly advise that you all try to do as you would be done by, and be each one *ready* to bear a little more than your share of such losses as may come up. Try to feel for each other, and beware of that great besetting sin of all mankind, selfishness. It is certainly one of my great besetting sins, if I do not look out.

Well, queens not only turn suddenly to drone layers, but they sometimes produce about an equal number of each kind of eggs. In all these cases, where the queen lays drone eggs when she evidently intended to lay worker eggs, they are in worker cells; also the number of eggs laid, usually, rapidly decreases. The bees, as well as queen, begin to think, evidently, that something is wrong; queen cells are soon started, and after the young queen is hatched, she becomes fertile, and begins to help her mother. All hands evidently think that any kind of a queen is better than no queen, hence a queen is seldom dragged out of the hive, as a worker bee is, because she is ailing.

Very early in the spring, or late in the fall, or at any time when forage is not abundant, a queen will pass right by drone cells, taking no notice of them. I have often tried to get eggs in drone cells by feeding, and can but conclude that the queen knows when an egg will produce a drone, and knows just what "wires to pull" to have every egg laid in a drone cell produce a drone. I think it very likely the workers have something to do with this matter, but I have never been able to make out by what means they signify to the queen that some eggs in drone cells, or even queen cells, would be desirable. There seems to be a constant understanding in the hive, as to what is going to be done next, and consequently there is no clashing. I wish, my friends, the human family could understand each other as well. In our apiary, there seems to be, in strong stocks, a kind of understanding that eggs shall be laid in drone cells about the last of March, and we, therefore, have drones some time in April, ready for the first queens that may, by any accident, make their appearance. Those who insist that there are only one kind of eggs can satisfy themselves easily, by cutting out a piece of comb, eggs and all, from either a drone or worker cell, and setting it in the bottom of a cell of the other kind. They will get a drone in a worker cell, or a worker in a drone cell. Again; if you give a young laying queen a hive supplied only with drone combs, she will rear worker brood in these drone cells. The mouth of the cells will be contracted with wax, as mentioned in HONEY COMB.

When they get ready to swarm, they build shallow queen cells, and the queen then lays a worker egg in these queen cells. Although I never saw her lay an egg in a queen cell, I am satisfied that she does it, from the way in which it is put in. Like the rest of the eggs, it is fastened to the center of the bottom of the cell, by one of its ends, and I suppose, when first deposited, it is covered with a sort of glutinous matter that makes it stick firmly, where it first touches. I know that bees have the skill to remove both eggs and larvæ, for I have several times known of their taking eggs and brood to an old dry comb, when no queen was present in the hive. Occasionally, a queen is found that will never lay at all; again, queens that laid eggs, which never hatched into larvæ, have been several times reported. One such was sent me this past summer. She was a remarkably fine and large queen, but while being introduced, she flew away and has not come back yet.

After having told you thus much of the faults and imperfections of queens, I would add, for their credit, that when once properly installed in a strong colony, they are about as safe property as anything I know of, for in the great majority of cases, they live and thrive for years. I have never heard of any disease among queens, and while a worker lives only a few months, they often live 3 or 4 years. One that was imported from Italy by Dadant, furnished us brood and eggs for queen rearing, for four summers. I then sold her for $2.00, and she died in being sent less than 50 miles. She was very large and heavy, and probably, being so old, could not cling to the sides of the cage like a younger one. I have never heard of queens being troubled with anything but an Italian parasite, and these quickly disappeared when they were introduced into our own apiaries. See ENEMIES OF BEES.

LOSS OF QUEEN.

It is a very important matter, to be able to know at once, when a queen is lost. During the months of May and June, the loss of a queen from the hive a single day will make quite a marked difference in the honey crop. If we assume the number of eggs a queen may lay in a day to be 3,000, by taking her away a single day, we should in the course of events be just that number of bees short, right during a yield of honey. To put it very moderately, a quart of bees might be taken out of the hive, by simply caging the queen for a single day. Beginners should remember this, for their untimely, or rather inconsiderate tinkering, just before the flow of honey comes, often cuts short their income, to a very considerable degree. Whatever you do, be very careful you do not drop the queens off the combs when handling them at this time of the year, and do not needlessly interrupt the queen in her work, by changing the combs about, so as to expose the brood, or upset their little household matters in the hive. With a liltle practice, you will be able to detect a queenless hive, simply by the way the bees behave themselves, on the outside. Where they stand around on the alighting board in a listless sort of way, with no bees going in with pollen, when other colonies are thus engaged, it is well to open the hive and take a look at them. If you find eggs and worker brood, you may be sure a queen is there, but if you do not, proceed at once to see if there is not a queen of some kind in the hive, that does not lay. If you do not find one, proceed at once to give them a frame containing brood and eggs, and see if they start queen cells. You ought to be able to find incipient queen cells, in about 12 hours, if the bees have been some little time queenless. As soon as you see these, give them a queen if possible. If no queen is to be had, they may be allowed to raise one, if the colony has bees enough. If it has not, they had better be united with some other stock.

A strong hive discovered to be queenless in the months of Oct. or Nov., may be wintered without trouble, and I am not sure but that a colony kept without a queen until natural pollen can be gathered in the spring is just as well off as one that commences rearing brood by the first of Jan., as they usually do. If you have no queen to give them in the spring, give them a comb of eggs from some other stock, at intervals of a week or 10 days, until they can rear a queen that will be fertilized. If the first queen reared should prove a drone layer, she must be destroyed that they may have an opportunity of rearing another that will not be over a couple of weeks old, when drones begin to fly. This of course takes time and care, so we generally prefer to have a laying queen in each hive, at the approach of winter.

More hives become queenless from queens being lost on their wedding flight, than from all other causes together, but the reasons for this have been so fully stated under other heads, such as HOUSE APIARIES, APIARIES, NUCLEUS HIVES and the like, that it will hardly be necessary to go over the ground here. If the hives are 7 feet apart from centre to centre, as in the hexagonal apiary, there will be little loss of queens from this cause. Where a queen is lost in such a way as to leave brood in the hive from which to rear another, the colony seldom perishes, but when a virgin queen takes her flight, if she is lost, no brood remains in the hive, unless it is supplied by the bee-keeper; hence, the very great importance of having a few eggs in every nucleus hive, all the time during QUEEN REARING, which see.

ODOR OF A LAYING QUEEN.

After bees have been some time queenless, they usually become, if no fertile workers make their appearance (see FERTILE WORKERS), very eager for the presence of a queen; and I can in no way describe this eager behavior, if I may so term it, so well as to describe another way of testing a colony you have reason to suspect is queenless. Take a cage or box containing a laying queen, and hold either the cage, or simply the cover of it, over the bees, or hold it in such a way, as to let one corner touch the frames. If queenless, the first that catch the scent of the piece of wood on which the queen has clustered will begin to move their wings in token of rejoicing, and soon you will have nearly the whole swarm hanging to the cage, or cover. When they behave in this manner, I have never had any trouble in letting the queen right out at once. Such cases are generally where a colony is found without brood in the spring.

There is something very peculiar about the scent of a laying queen. After having had a queen in my fingers, I have had bees follow me and gather about my hand, even when I had gone some distance from the apiary. By this strange instinct, they will often hover about the spot where the queen has alighted even for an instant, for hours, and sometimes, for a day or two afterward. Where clipped queens get down into the grass or weeds, or crawl sometimes a considerable distance from the hive, I have often found them, by watching the bees that were crawling about, along the path she had taken. When cages containing queens are being carried away, bees will often come and light on the cage, making that peculiar shaking of the wings, which indicates their joy at finding the queen.

IS IT AN A B C BOOK, OR CYCLOPÆDIA, ETC.?

After sending for a specimen of Gleanings, last spring, I resolved to keep bees. I at once subscribed for your bee journal, and bought your A B C books, as fast as they were published: but, while I have been a close student of both, and the bees too, I have found it necessary, once in a while, to interrogate you about something which a beginner should, but would not, know. You are right about going over the ground so frequently in Gleanings for the sake of beginners, since the old fellows would not only get their "dander up," but would have a right to do so. So the best that we can do, I think, is to write you when we have to, and inclose postal or postage for reply. This I am always willing to do, and have done so.

Well, I now want a little lift; please find card inclosed, and I will put my questions in a shape that a few words on the card will give me the desired light. On examining my bees now, I find as far as I have gone, that they are literally devoid of any brood sealed or unsealed. They may have eggs, but it was getting dusk, and I could not be certain about that. An old bee-keeper tells me that it is the case also with his bees, and that all such swarms will die this winter; upon actual weight, one colony has 37½ lbs., and the other 60 lbs. of honey, bees not included. Every comb (in brood chamber) is at least ⅔ to ¾ full, and some entirely full and sealed. A few combs have a margin of 1½ to 2½ inches of empty comb along the lower edge. One or two have probably one-half of one side full of bee bread. Now will they eat sufficient honey before cold weather to afford them the empty comb requisite? And will it answer their purpose, situated as it will be, on the lower extremities, or *must* I hunt up some empty combs to put in the center?

I am putting home made chaff cushions in the sides and top, and have good warm hives. How many pounds would you leave to each colony?

Hugo, Ill., Oct. 28, '78. Dr. A. C. Williams.

P. S.—Your A B C books deserve a better name than that you have given them. While they are really A B C books, they are also more. Every profession, study, subject, or science, sooner or later, has a cyclopædia; we doctors have our cyclopædias of medicine, and it is so with other literature. The cyclopædia of any branch of literature is the highest authority on that particular branch. All of these are fit reasons why your A B C book should be entitled "Encyclopædia of Apiculture," or "Cyclopædia of Bee Keeping; Vol. I; Vol. II, &c." I am not "picking flaws," but say what I do more in the way of praise. Well, I so refer to mine, and when asking them of a neighbor, who may have borrowed them, I ask for my "cyclopædia." You may think more of me, or perchance less, when I tell you I have bought a lot, planted it with vines, and am going to keep bees right. I expect, bye and bye, to have the finest of bees, as I have now of grapes. The grapes are "Lady Brighton," and 25 or 30 other sorts.
A. C. W.

If you send a stamp for return postage, you will have to use an envelope, making the whole cost you 6c.; while, if you use a postal for your inquiries, it will cost you but one cent. If, by expending one cent of my money, I can save you 5 cents of your money, I think I had better stand it, so you need not, any of you, send any stamps when asking questions. Put them plainly on a postal, and pitch right into your subject.

Your bees are all right, and if your friend who is an old bee-keeper had always been in the habit of examining his hives in the fall, as he seems to be doing now, he would not have told you they would die this winter. There is seldom any brood to be found in Oct. and Nov., and it is hard to find the queens, at this season. Take honey from the 60 lb. colony, which has too much, and give to the other, of course; this is one great purpose of movable combs. If the figures you give are honey only, both have decidedly too much. I would rather have 20 lbs. of honey in the hive than more, if I was sure they would all be looked after in the spring; they can warm up this amount more easily than a larger quantity. The bees will fix the honey just as they want it, and I would by no means think of putting empty combs in the center. Your bees are all right, unless you have given them too large a brood nest. See remarks on wintering in Sept. and Oct. No's.

You will see, by examining the front cover, that the A B C book is called a cyclopædia. The objection I had to giving it this title first, is that cyclopædias are usually the work of veterans in any science. This book is compiled mainly from the experience of thousands of beginners, is put in plain, simple language, and is changed and remodeled almost every day, to suit the new developments that are constantly coming up. I wish to have you consider it the A B C of the science, and to feel that it is your A B C, and the result of the summing up of the experience of the multitudes.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

A B C, part first, and Aug. No. of Gleanings are received, with which I am well pleased. We have kept a few bees for 10 years, and after reading your books I sat down and cried, to think what ignorance had cost us. No Italians—no nothing—that compares with the times in bee-keeping.

Indian Falls, N. Y., Oct. 10, '78. Eliza G. M.

I have been trying to find something appropiate for this department, and as a woman is pretty sure to smile, and to some purpose too, after she has had a cry, I thought this might be just the letter. Dry your tears, friend Eliza, and be of good cheer. You can have all these things in time, and almost without money too, if you are patient and willing to work. Acknowledged ignorance is the beginning of wisdom.

Why, yes! Friend Novice, if you like, fix *your* smoker *our* way. You see, that other half of mine burned himself severely, and then commenced his tramp "around the stairway."

Now we are qualified to suggest that, if you will *rivet* a small tin hinge on one side of your cover and can, and put a catch on the other side like that on a tin spectacle case, a slight blow either removes or replaces the cover. I guess I will not try for a patent, as there's so much *smoky* contention that we might get *our* ears boxed, Jennie Leete.

West Amboy, N. Y., Nov. 8, 1878.

Why friend Jennie, if you and your sister Mollie (away off somewhere, I can not remember where now), do not stop making such bright suggestions (by the help of your "other halves" *of course*), I shall stop walking around the stairway, entirely. Like a spectacle case! Who first thought of that? You or he? Because, you know, I want to send the lucky one, Gleanings for next year, and I think I can afford to throw in a picture of myself and Blue Eyes, besides. I suppose I ought to do better, but I hav'n't scarcely a speck of money left, except postage stamps, and—we will all give you a vote of thanks; won't that do?

Heads of Grain,

From Different Fields.

KEEPING A NUCLEUS IN THE HOUSE, ETC.

I HAVE been to you with questions before, and you have kindly answered, so I dare come again, notwithstanding, I read every month on the title page of GLEANINGS, about its being "a grievous tax and burden on your health and time." I must first explain the situation, before I ask questions.

A neighbor took the honey from his hive of bees, and left them with a few pieces of comb containing brood, to do as they pleased——die, or abscond. After a time, he discovered that they had gone to rearing queens; in fact, one large piece of comb was covered with queen cells. The case came to my knowledge, and I begged the bees to save their lives. I found that a number of the cells had hatched, or been torn off, and two were still capped over.

I have put the bees, with their few combs, into a glass hive of the Simplicity size, and am feeding them. I intend to keep them in the house, shut in, just for the amusement of watching them. They are very gentle, and bear handling well.

Now, what was the cause of their rearing queen cells at such an unreasonable time? Did they intend to swarm out, or was their old queen destroyed when the honey was taken, and so they felt obliged to do something? If they now have a young queen, hadn't I better destroy her (if I can), and get an Italian queen?

I would like to watch the change this winter in Italianizing this little swarm.

To come to a practical question, can I get the Italian queen so late in the season safely?

I find I must have two of your Simplicity feeders. I have been feeding from a tumbler filled with syrup, inverted on a plate, and set outside before the hive. The bees crowd around the edge of the tumbler like pigs; but now the weather is cooler, and I must have something I can place inside.

I believe I shall not have to ask any more questions this year. MRS. J. M. SQUIRE.

Redding, Conn.

It was answering questions myself individually, that was the grievous tax and burden; your questions have all been answered by the clerks, on postals, and I am very glad they were satisfactory. Six different clerks do the work, and a part of them are almost constantly thus employed. During the past year, they have used 12,000 postals. It is my business to do such work, as it is the business of any dealer to wait on his customers.

The bees started cells, I think, because their old queen was destroyed. We can furnish queens at almost any time in Nov., when the weather is not very cool. You can winter your colony probably, if you take them out for a fly, every day when bees kept out doors are seen flying about. Be careful about letting them out when it is too cool. I would feed them only on white sugar syrup or candy, until they fly considerably in the spring, and then give them candy with flour in it, to start brood rearing. Ask all the questions you feel disposed, any of you; I think I shall be able to read and approve all the answers sent you for some time to come, even if I do not write them personally.

The honey season is not near so good as last. 700 lbs. of box and extracted honey from 35 stands, and 40 swarms. JOHN E. JARRETT.

West Point, Ia., Oct. 31, 1878.

HOW TO GET THE FUEL INTO A HOT SMOKER.

I notice in last GLEANINGS that J. B. Cooper asks if you can't improve the smoker so the top can be removed and replaced when hot. I have thought of an improvement frequently; so here it is. Put a small hinge on one side and a hasp on the other to raise and fasten the top. How will this do? or is it too much machinery? If you can't hinge a round barrel, just make it square and put two hinges on, and solder the funnel top to it; but this may be too much work. J. M. FAVIS.

Carrollton, Mo., Oct. 8th, 1878.

Your plan is not new. The difficulty is the expense of such an arrangement, if it is made durable, and that the smoke will blow out where your hinged joint is. A hinged joint can not well be made as tight as one that slips over. A plan is under way that will, I think, give us a permanent opening for putting in the fuel, and no smoke blows out of it, either.

HONEY FROM SKUNK'S CABBAGE, ETC.

Through reading your Vol., I transferred my bees last spring, then I more than doubled them, and took more than 100 lbs. to a skip, not counting in the swarms.

I have both Italians and black bees, and it does not take much study to see that the Italians are ahead for working, but I am not so certain that they are quieter and tamer than the blacks when you want to work in their skip.

I consider Orange Co. an excellent place for bees, as we have willow and skunk's cabbage early in the spring, any abundance of fruit blossoms of all kinds, and locusts; the fields are white with white clover, and red is plentiful; there is some basswood, and the farmers are going in for buckwheat; so you can see that I will have quite a chance to hold my own among bee-keepers. H. P. DEMAREST.

Warwick, N. Y., Oct. 18, 1878.

I suggested a few days ago that I thought honey was made from skunk's cabbage, but the idea was taken as a joke. Who can tell us more about it?

I have about a ton of fine extracted clover honey, all grained now. I can find no market here. I propose to try heating and putting it into cans, and see if I can't sell that way.

We had the best honey crop that I ever knew in this country, but the hot weather in July completely cooked the clover, and that was the end. Nothing else produced any honey for surplus.

About half of our bees are already starved, or have swarmed out for want of stores. Bees and honey are so unsaleable in this country that we don't see any profit in feeding in the fall.

I am using N. C. Mitchell's patent (Humbug) Division Board Hive, for which I gave him $10. I must confess that it is a good hive for the extractor.

S. S. FETHEROLF.

Palestine, Ohio.

PATENT HIVES.

Mrs. Harrison makes the following very sensible remarks, in the *Prairie Farmer*. Methodist, as well as other ministers, would do well to be careful what they do, or who they endorse.

A novice can be easily deceived in a hive. Some of them are like a patent churn that we once saw, capital for churning water, but a failure with cream. In looking over the hives of a neighboring apiarist, he pointed to a hive saying, "That one there was sold to me by a Methodist minister. I thought it was the nicest thing I ever saw; it was fun to pull out the little drawers before there were any bees in them, and I promised myself a great deal of pleasure in pulling them out filled with honey. This I have never been able to do, as the bees have fastened them so tightly with propolis that they are immovable."

Most novices in bee culture think they can invent a better hive than was ever made before, but after a few failures they are not so sanguine. The little pets will have their own way, and pay no regard to the wishes of an apiarist, who screws on one side of their hive expecting to look into their private apartments whenever he fancies. It is glued on so tightly that if the screws are drawn, the side will remain just as tight without them.

In my next, will give you an ad. for my hives, and I deem it no egotism to say that my saw works beautifully, and that I make an article that will *almost* compare with yours. C. H. Deane.
Mortonsville, Ky., Nov. 5, 1878.

I want to see my pupils all do *better* work than I do, friend D.

BEE CAVES.

I am anxious about the bee cave question. I have sometimes doubted that bees work in caves, but my wife says she has seen them working in rocks. Now I want to know how they fix things; do they have several queens? and, if so, are they all together? or does each queen have her own room?

We know they must have more than one queen; if we can find out how they arrange things in those caves, we can build as many bee houses as we please, and the bees will work in them too. O! how I want to see inside a bee cave! Is there not some reliable man that will open two or three bee caves and tell us about them in our bee papers, or print it in pamphlet form, giving drawings?

Now, Mr. Root, don't say it will do no good to know these things, for we all want to know all that can be known. I would be willing to pay double for Gleanings next year, if it would contain the information I want on the above question, or I would be willing to pay something towards the expense of finding out about it. May be, some of the many readers of our dear Gleanings can tell us something about bee caves; if so, "rise and explain," and you will have the thanks of your brother, D. G. Parker.
St. Joe, Mo., Nov. 6, 1878.

The above letter is a fair sample of the way in which the minds of different individuals run in different and out of the way channels. Bee caves! Did you ever? All right, friend P., go ahead. I never saw any bees in a cave, but I think they must work much as they do in trees, or even in the house apiary. Each colony must have an apartment of its own, or the queens would constantly be liable to be killed. The entrances, too, I should say would need to be a foot or more apart. Of course, they will get along differently for awhile, but there are always risks, that it does not pay to incur. You can easily make a bee cave, if you can find a soft dry rock, large enough. Some localities would furnish them almost naturally. If you have no rocks, build a stone house apiary, or even one of brick. The great objection to such places would be dampness, unless it was in a very warm climate, where bees seek clefts in the rocks naturally. Some one of our readers has written in regard to them; who is it?

AN A B C SCHOLAR 66 YEARS OLD.

I am very much pleased with fdn., and shall want more next spring. This is my first year with bees. I bought 2 swarms last winter, and now have 8, after losing 2. I am 66 years old, so you will not expect great things from me, although I study A B C very closely. My bees are all Italians. E. T.
Kewanee, Ill., Nov. 4, 1878.

A TIMELY WARNING TO BEGINNERS; ALSO SOMETHING ABOUT UTAH.

I am a bee man. Eight years ago, I bought a colony of bees for $100.00; have disposed of a hundred or more colonies, and have now remaining 200 working stands. I commenced a novice, and in my eagerness, did too much, as most beginners do, stretching out too fast, and lost hundreds of colonies too weak to stand an open winter. Had I the time, and the same opportunity over again, I might have now thousands of colonies. This is only a moderate honey region; the climate being hot and dry. Through the summer, we get very little honey pasturage except from the cultivated fields, orchards, and gardens, as plants and flowers dry up.

From May till Sept., the mercury runs up daily, in shade, from 80° to 100° Fahrenheit. Last year, I took about 4 tons of honey; this year, I won't have half that amount, although, from indications, and better growth of plants, I expected a better crop than last year.

Bees propagated heavily, but it seems that their secretions of nectar have not been abundant.

Having a large garden, I raise plenty of mignonnette, sweet clover, great American bee plant, catnip, and many assorted garden flowers that make bee food. At times, Alfalfa or Lucerne makes fine pasture, and yields plenty of fine honey; at other times, bees don't work on it at all. We have broad fields of it, so when it does yield nectar we are gainers. J. E. Johnson.
St. George, Utah, Sept. 16, 1878.

HONEY DEW.

I was raised in the lonely mountains, in West Va., and was a mill boy from 35 to 45 years ago. The mill was 7 miles distant, and I had to go 3 times a week; 3 miles of that distance was a "blazed out" bridle path, the bushes thick, apparently, as nature could plant them. There were a great many chestnut trees and chestnut bushes. I am certain that I would not exaggerate if I should say that I have licked off gallons upon gallons of that sweet, dripping honey dew from those chestnut leaves.

There were mornings after there had been heavy dews, when I have seen it drip from the leaves. Why the chestnut leaves were its home, I am sure I can't tell; but, friend Root, there are a great many things in this world that we don't know; if it were all put in one book, it certainly would be a very large book.

I have been in this country 20 years, and if I have ever seen one drop of honey dew, I don't know it. I don't believe this country affords any honey dew whatever. J. Wills.
Greenfield, Ind., Nov. 8, 1878.

SWEET CLOVER.

You ought just to have seen the bees working on a small patch of sweet clover, and you would not, for a single moment, doubt its value as a honey producing plant. Although only about ⅛ of an acre, I am sure the bees that were on it would have made a very extra large swarm; it was fairly alive with them. H. Smith.
New Hamburg, Ont., Can., Aug. 12, 1878.

Very likely, an acre of sweet clover would keep 8 swarms busy, when they could find nothing else, but it might be, even then, if my observations are correct, that they would not get enough to keep them from starving. I do not mean to say that sweet clover does not produce honey in large quantities, but only that their being so busy on it does not necessarily prove it. Watch a bee, and see how many blossoms he is obliged to visit, to get a load. We need more experiments such as our friend Mollie made with the spider plant.

WOODEN SEPARATORS, SALT FOR BEES, ETC.

As an answer to what you said in Gleanings, in regard to the thickness of our wooden separator, we will say that we found ⅛ of an inch thick enough. There would not be much room wasted by having the separators only ⅛ of an inch thick. Those we have used, and the one we sent you, were 3-16 of an inch thick, and not ⅜, as you stated in Gleanings.

The basswood we get here is not all as nice and white as that of which those sections were made, but as we use a great deal for honey crates, frames for brood nest, broad frames to hold sections, etc., we always use the dark colored wood for these purposes, and keep the whitest for sections.

Now, we have one more question to ask you; is salt necessary for bees? If it is, there should be something said about it in your A B C.

Greiner Bro's.

Naples, N. Y., Nov. 5, 1878.

I beg pardon; I did make a mistake on the thickness of the wood separators, and I presume they can be used only ⅛ thick. One objection to even this thickness would be that they separate the frames, and allow the bees to put in propolis between the top and end bars where the separator does not come. It is true, we could let them into the end bars, as we do the tin, but I should regard the thickness, even then, as an objection. I have thought the bees less liable to make attachments to the tin, but I may be mistaken. The queen may also be less liable to use the sections, if tin be used. Before adopting wood largely, we ought to have some careful experiments. Wood gives a more perfectly level surface, and is not so good a conductor of heat, but as it must be perfectly clear and free from knots, I am not sure that it will be very much cheaper than tin.

I have tried to feed our bees salt, but they have never taken any notice of salt water feeders. When over at neighbor Blakeslee's, one day, I saw the bees digging vigorously into the sawdust.

"Aha!" said I, "you have been spilling honey or syrup down there."

"Indeed I have not."

"But some one certainly has."

"No, sir. It is where salt was thrown down, and the rain washed it into the sawdust."

If anybody can tell me how to make *my* bees eat salt, I shall be much obliged to them. I will put it into the A B C, too.

AMERICAN IMPLEMENTS IN SCOTLAND.

Fdn. is a great success in this country; so are your dovetailed sections. I had over 130 of these filled in one hive, and sold them at 40c. each. Altogether, from 12 stocks of bees, I sold over $200 worth of honey, besides increasing stock.

Novice's smoker, Novice's sections, and Novice's queen cages are all being sold by our dealers. The smoker, at my suggestion, has the cap hinged and a small piece of wood riveted opposite to lift by.

WM. RAITT.

Blairgowrie, Perthshire, Scotland, Oct. 30, 1878.

Right glad am I, my friend, to hear you are succeeding away across the water, with the same implements we have used so successfully here. I am glad to know, too, that you are making improvements on them.

GRAPE SUGAR.

I have a word to say about this much talked of article. I believe I was one of the first to use that made at Davenport, for feeding bees. Those that talk about grape sugar's being made with old rags and containing sulphuric acid and chalk have, probably, never tasted, or even seen, that sold at Davenport for bee feeding.

Do they claim that bees can eat it with impunity when it contains sulphuric acid, and then mix it with the honey to poison those who eat the honey? or that we mix it with the honey ourselves? As you say, bees will not use it when honey is plenty in the fields. I have never detected any trace of it in box honey, but find it in the combs when extracting from the brood chamber, and the extractor leaves it there the same as it does bee bread; the quantity so found is very small, which shows that it is consumed by the bees in brood rearing, nearly as fast as carried into the hive. That it is valuable in this way, I have no sort of doubt, and as wholesome for food as the corn it is made of.

I have never tried mixing it with honey for table use, nor do I care to. Honey is cheap enough now.

To all I would say, "Try all things, prove all things, and hold fast that which is good," not condemning hastily, lest we injure ourselves, as well as others.

D. C. UNDERHILL.

Seneca, Ill., Nov. 11, 1878.

FEEDING GLUCOSE, DEAD BEES ABOUT THE ENTRANCE, ETC.

I have joined your A B C class; I started in the bee business last spring, bought several good colonies and a few mothy ones, collected of farmers some bees that were doomed to death for their sweets, several I got from the woods so that now I have 13 colonies upon which to experiment.

I have put 5 in the cellar, 6 packed in chaff on summer stands, and two unprotected. Four of them which I put in the cellar I have fed almost entirely upon glucose; they not having one drop of honey, I took 6 fluidounces of water, added glucose enough to make one gallon of syrup, took out the combs and, with a large spoon, I poured the syrup pretty warm in the cells, and after leaving them to drip for one hour, I put them into the hive. I shall report fully the results of my feeding glucose at the close of winter.

I have one hybrid colony; they have done well this season, as far as I know, but since cool weather has set in, they upon a warm day cast out numberless quantities of dead bees. What can be the matter? They are clean and have plenty of honey.

DR. H. J. PETERS.

Ragersville, Ohio.

I am inclined to think, my friend, your glucose, unless your colonies were extra strong, will do harm. You fed them too much all at one time, if I understand you right. Sugar syrup, or even honey, I fear would make mischief fed in the same way. Do you not exaggerate the amount of dead bees brought out? If it is a few each morning, it is probably only bees that cluster outside of the main cluster, and get chilled. Old bees will also drop down from the combs and die, more or less, at the approach of cold weather, and beginners are often needlessly worried to see them scattered around the entrance. About a year ago, our minister told me his bees must have some disease as there were he thought, a pint or more of dead ones, about the entrance. I went down to see them, and found perhaps a hundred bees. As they lay scattered about, they made quite a show, but as the colony was a strong vigorous one, it was probably only the old bees that had been thrown out.

QUEENS WILL STING; HUNTING BEES, ETC.

Bee report for 1878. I commenced the first of May with 44 colonies, and have now 86 colonies, besides having extracted 300 lbs., and taken 1000 lbs. of section box honey. It has been a very poor year for bees, but honey is low; 8c for extracted, 10c for box honey, and slow sale. Bees are worth 000. I have offered 50 strong colonies of pure Italians, at $5.00 per colony, and have not sold one yet. I don't think of going into the Blasted Hopes yet, however. Well, black queens will sting, and I know they will. I was at Friendship, (Adams Co., Wis.,) in September, where I found a job of hunting a black queen. Two men had looked for her, and could not find her, I found her and caught her, and put her in my mouth, and she stung me on the lip. I spit her out, and then tried it over, and she stung the other lip. I soon had two thick lips. I had tried to get queens to sting before, but could not.

I used to hunt bees and used for scent, oil of clove, oil of cinnamon, and oil of anise, ⅓ of each; mix them and put a little (3 or 4 drops) on the under side of the comb that you use in your bee box. I think that a drop of oil of cloves put into the honey (one drop to 2 table-spoon-fulls of honey) will help to get them to work sooner, that is, get them excited, or get them going as they will when you open a hive a few minutes, at this time of year, when bees are out flying.

W. A. EDDY.

Easton, Adams Co., Wis., Nov. 11, 1878.

I got my $4\frac{1}{4}$x$4\frac{1}{4}$ boxes and fdn. of Sayles, of Hartford, Wis., and they were the nicest, and put up the nicest, of anything I ever saw. I used to hear them called the "Sayles boys," but I believe they are full grown men, every inch of them. O! I had almost forgot to say that my bees are all packed in chaff on their summer stands, the same as last winter. I have lost none.

JACOB CHILDS.

Amherst, Wis., Nov. 12, 1878.

DO BEES CARRY INTELLIGENCE IN REGARD TO THE WHEREABOUTS OF THEIR QUEEN?

I ought to say to you that, after the queen I got from you died, I set the cage containing their own queen, on the bars of the frames, and the following day, I found the bees of this hive carrying in heavy pellets of pollen. I turned her out, and they received her with "songs." Perhaps they knew she was alive all the while, and hence remained loyal to her, and would have none other. I came to this conclusion, because several bees visited my wife's room, where their royal madam was caged to keep her warm, to look after her, or the candy in the cage? which?

I have looked her up since she was given back to them, and she has improved very much in size since I first removed her. I am now feeding this colony for the purpose of testing her. I feared she might not be fertilized so late in the season. She is a pure Italian. G. W. DEMAREE.

Christiansburg, Ky., Oct. 12, 1878.

I think it very likely that the bees, by some means, carried intelligence in regard to the queen's whereabouts. I once carried a queen from a nucleus to a queenless hive, taking along a great part of the bees. Before night, some of the bees had gone back to their old home, communicated, in some way, the state of affairs to their comrades, and all finally joined in carrying the stores to their new home, where there were plenty of bees; thus I was saved the task of getting the honey out of some old Quinby frames into a Simplicity hive some rods distant. I think we shall sometime learn how to take advantage of this——shall I call it, sagacity of bees?

Ever since I read in "Our Homes," about your troubles to obtain money to complete that factory, I have been thinking how I can help you just a little; if all of us subscribers should be of one mind and send next year's subscription in advance, what a great help it would be. I will act upon the thought, and that will take the matter off my mind, for I can't stop thinking about it, if I don't; so find enclosed one dollar for me. Furthermore, I came across a young man from a neighboring town, whose father owns some 60 swarms in old box hives, and I induced him to send for GLEANINGS. Enclosed find also one dollar for him. Some day, I'll tell you all about my doings with bees. I will say now, however, that I have made a small factory and turned out some 70 Simplicity hives this year, most of which are full of bees. When the "sign comes right" and I *prove* to our people that this scientific bee-keeping *is not a humbug*, I'll send you *such* a list of new subscribers. GEO. C. GREEN.

Factoryville, Pa., Nov. 5th, 1878.

God will bless you, my friend, for the unselfishness which makes you think of my factory and myself, an almost utter stranger, rather than of your own factory and yourself, who very likely are far more deserving of help, than I am. I am very glad to hear you are succeeding with your hive making and bees; nothing gives me more pleasure than to hear that my pupils are learning to make their own supplies, thus saving expensive freights, and learning self reliance and independence.

OUR HOMES.

If any doubt should creep into my mind in regard to the propriety of having "Our Homes" in a bee paper, it would be quickly dispelled by such little chapters from real life as the following:

The largest honey producer in this county, Mr. G——, had never seen the sections, and was very much pleased with them. He lives about 3 miles out of town, while I live in the city. About a week after the fair, I was surprised at his coming to my place, and taking dinner with me, and spending most of the day to post himself on bee matters.

I am a young man, while he is a father of a family. He is a college educated man, and one whom it is very hard to tell anything, as he knows it all; so I was quite flattered by his coming to me to learn. At first, I was a little inclined not to post him, as he is my greatest competitor in selling honey in this market; then I thought of "Our Homes," and concluded I would do just as I knew you would in my place. So I showed him * * * * and sent him home happy, with plenty of grapes, &c., for his wife and children. E. B. B.

May God bless and guide you, my young friend, and may you learn to look to Him, if you do not already, rather than to my poor self, for an example.

WHERE SOME OF THE BLAME RESTS.

Enclosed you will find $1.00, for GLEANINGS. I thought it strange when Sept. came and went and no GLEANINGS, but when Oct. also came and no GLEANINGS, I knew there was something wrong; so I took the boy to task, by whom I sent the letter and money to the office, when he confessed that he destroyed the letter and kept the money; so that accounts for my not getting GLEANINGS. Please send Sept. and Oct. No's, and oblige GEO. SMALL.

York, Pa., Oct. 15, 1878.

I have given the above to show in what ways mistakes may come, and to show the need of going slow, before deciding where the blame belongs. A postal came a few days ago, with a peremptory command, to send GLEANINGS, or return the money forthwith. The money had for some reason never reached us. Although we may make mistakes here, we are trying very hard, all of us, not to do so; will you not give us credit for so much? I trust very few occur in the way mentioned above.

GRAPE SUGAR AND CANDY.

I reduced my bees to 40 stocks, in the spring, by doubling weak swarms. From these 40 stocks, I took 2200 lbs. of honey, and increased to 60 stocks. I have bought 20 stocks, making my present number 80, all of which are supplied with 25 lbs. of stores and packed in chaff for winter, except one, which has nothing but frames filled with grape sugar. They have lived on it six weeks, and appear to be doing well at this time, Oct. 30th.

I consider it an experiment, and would like to hear through the magazine the result of experiments with grape sugar last year.

I wintered three swarms last year, on candy made of A coffee sugar, melted and poured into the brood frames, they not having an ounce of stores except the candy. J. B. HAINS.

Bedford, O., Oct. 28, 1878.

I, too, have wintered bees on candy with nothing else, and with the candy slabs in frames, I have no doubt but that a colony could be wintered on it without combs even. The candy with the flour in it furnishes everything needed for their sustenance.

HONEY DEW ON THE OAK.

We have had a very good season for bees in our country. About the first of July we had a honey dew on the oak trees. I did not observe it upon any other trees or upon the weeds or bushes under the trees, and saw no bees working upon it. It remained for a week or ten days, gathering moisture at night and drying up in daytime. JOHN BAIRD.

Elm Grove, West Va., Oct. 17, 1878.

Thanks for promptness. Queens are all introduced safely. Bees are gathering some honey from cotton blossoms. No sugar to buy. All in winter trim. E. J. ATCHLEY.

Lancaster, Texas, Oct. 28, 1878.

I have been trying the Simplicity hive this year, and the bees have done well. Two swarms increased to five, and gave a total of 107 lbs. of honey. O. ROBINSON.

Ottawa, Kas., Oct. 29, 1878.

I notice friend Wolcott's tool grinder in last issue, and allow me to thank him and you for the same. Mr. W. says he has used it 27 years. I have a similar one that I have had since 1863. Mine is a triangle; sides 4 ft. long, 1½ in. square, base 12 in., and a spur in the other end; 12 inches from the base there is a cross bar which carries a clamp with 2 thumb nuts, that will hold the widest plane iron or the smallest chisel.

But this don't fill the contract, although it answers very well where the stone is in good order; where the grindstone is of all diameters as our machinist's is, I do not like it so well, and especially when the thing is going like a fiddler's elbow at that.

I send you a design of one, cut from a catalogue of wood working machinery, and which I think is on the right principle; but it costs $20. Can we get a cheaper one? With one of this sort, it matters not if the stone is not exactly level, as you can use the higher part and improve stone and the tool you grind at the same time.
WM. H. KIRK.
Waterbury, Conn., Nov. 15, 1878.

You are right, friend K.; the proper way to have a tool grinder is to have the tool carried firmly back and forth, in a line parallel with the axis of the grindstone, but to have no movement in any other way. This will make the stone wear true, even if it is not true in the first place. If some one else cannot make one for $5 or less, I think I shall have to do it.

GETTING SURPLUS HONEY, TRANSFERRING, ETC.

I have often heard the "old style" bee-keepers say that where the bees had filled one box or "cap" of honey, if you would lift that box or "cap" and place another empty one in its place on the hive, and put the "cap" already filled on top of that, the bees would hasten to fill the empty one, would even make greater effort to do so than if the full one was not left on top of the empty one.

They say the bees do not like an empty space between the brood chamber and their stores, and, if possible, they rectify the matter by filling the space between with honey.

Now, what I want to ask is, has your experience ever shown that there is any truth in this? Is the empty space any incentive to make bees work when they otherwise would not with as much diligence?

From what little experience I have had in transferring, I would suggest to the A B C "child," E. A. Morgan (I am one also), that he would find it much better not to stop driving the bees out of the old hive as soon as he sees the queen go up, but continue puffing the smoke in below until *all* the bees have gone out of the hive; then he will have only the combs to handle, with no bees in his way to be killed or to bother him.
T. C. HUNT.
Richmond, Ind., Nov. 15, 1878.

To be sure, the "old style" bee-keepers are right, and I believe our experience all agrees with the idea. This is one great element in using the sections. As you take out the finished ones, one at a time as fast as filled, the bees keep right on at work on those around them, and commence at once to fill the space left by those removed, and we have no stopping while the season lasts. This is a very important advantage over a single large box, which is taken off the hive all at once.

GALLUP IN CALIFORNIA.

The following came from friend Wilkin, after he had started for Europe:

Elisha Gallup, being overtaxed with labor in the healing art, at Osage, Iowa, has come to California to practice bee culture. He takes charge of my bees in my absence in Europe.
R. WILKIN.
San Buenaventura, Cal.

So you see Gallup has got back to bee-keeping again, after all? What a world of changes this is?

QUEEN'S STINGS, AND QUEENS GOING HOME.

You ask in the last No. of GLEANINGS why I killed the queen which stung me. In the first place, she was almost black; in the second place, I took her out of a nucleus hive, and introduced her to a full, queenless colony, in order to keep it up until I had one with yellow bands to give them; she staid only one day and night, but long enough to plant a lot of eggs for them to raise black queens from, and then returned to the nucleus from which I had taken her, and destroyed a nice queen cell that was almost matured.

I was provoked at her, and caught her to kill her, when she stung me on the finger. I then put her back in the nucleus to see if she would die. I left her until I was satisfied that she would not die, and that she laid after she stung me.
FREDERICK MEYERS.
St. Thomas, Pa., Nov., 14, 1878.

So queens do sometimes sting, after all, and don't die either. But, friend Frederick, are you sure this queen was not one of the half queen and half workers which I have been telling you about? I know queens sometimes go home, for I have had them do the very trick you mention.

SMOKERS, AND A REPORT FROM AN A B C CHILD.

Please tell the man that is bothered about getting the top off from your smoker, to dash a little cold water on it and he can take it off without any trouble, with his bare hand. 900 lbs. of honey and 8 new swarms saved from 17. Honey all sold; 10c. for ext., and 15c. for comb. This is my first summer with bees.
C. M. SLAYTON.
Grattan, Mich., Nov. 15th, 1878.

HOW TO KEEP SECTION HONEY.

Please tell us in Dec. No. of GLEANINGS, if possible, how we can best winter honey in sections. Prices are so low that some of us wish to hold it for a while. Will exposure to severe cold injure it?
G. W. HAVEN.
Bloomingdale, Mich., Nov. 12, 1878.

Keep your honey in the cases just as you send it to market. It should be kept in a dry room, where water will not freeze; dry, because dampness collecting on the caps injures the looks of the honey, and may cause it to sour at the mouth of the uncapped cells. Free from frost, because freezing is apt to make the combs crack, and let the honey drip. We keep it over winter every season, without any injury whatever.

The 3 queens I ordered through Mr. Stehle came Oct. 29, in good condition, and I think they are safely introduced. I will tell you something about it. Nov. 12th, I found a queen in front of a hive, stark and stiff (before sun up). That queen could have been bought cheap. I breathed on her, and thought I saw a twitch of the leg; with more warmth, came more kicks, and now that stock is "above par," for just before dark she was the nicest looking queen I have.

I use a 5 inch tin saw, teeth $\frac{5}{8}$x$\frac{1}{8}$, for grooving boards for roof of Chaff hive. So far, it works nicely; the mandrel has a 3 inch collar.
C. G. KNOWLES.
Portland, O., Nov. 13, 1878.

We often find queens apparently dead, and revive them in the way you mention. It may help others. A tin buzz saw! When I was a boy, I used always to make my buzz saws of tin. They might do considerable cutting, on thin work, but I fear it would be a task to sharpen them so often.

I started with 3 swarms in old hives, which I transferred and increased to 10, by artificial swarming. I did not get any honey though. Some of the swarms are rather small, but they have stored honey enough to last them, if they were 3 times as many. I am going to fix them up warm, and feed them candy, to see if they will increase.
WM. J. WRIGHT.
Pilot Center, Ill., Oct. 18, 1878.

FROM BLASTED HOPES TO THE SMILERY. AN UNLOOKED FOR TRANSITION.

I received the grapé sugar the other day, all right. It was too late for the purpose for which I ordered it; viz., to feed 25 young swarms, which I think had not 2 lbs. of honey apiece when I ordered the sugar, and now they are too rich. They made honey so fast that they crowded all the brood out. I have been buying all the surplus bees I could get, and putting them in my weakest hives, to keep up their numbers. This honey was made mostly in Oct., from a weed which grows in our old waste fields. It grows from 3 to 4 feet high, has a white blossom, commences to bloom the latter part of Sep., and continues to bloom during Oct. I do not know what its real name is. I send you a sample of the weed, and may be you can give it a name.

I took from the top story of one hive, the other day, 60 lbs. of honey. This was a natural swarm that came off on the 22d of May. I had taken out of this same hive, five of your Langstroth frames full of honey, and given them to some weak hives. I did not weigh them but put them at 30 lbs. Before I took off the 60 lbs. the whole hive weighed 142 lbs. If we take 45 lbs. for the hive, and 10 lbs. for bees, we have 117 lbs. of honey. I got the mother of this hive from the woods; they have one bright yellow band next the waist, but there are no Italians within 25 miles of me, that I know of. I got an Italian queen from Ga., in June. She laid enough eggs to raise about half a gallon of bees and then died. About ¼ of her bees had no wings, but they would crawl out of the hive, and start after a load of honey. Now I want to know whether the Italians walk after honey or fly. I notice that GLEANINGS says they make the most honey. Perhaps they can carry the most when they walk. I have a notion to try one of your Imported queens and see what she will bring forth. I came near forgetting the Simplicity hive I got of you last spring. I have 21 of them now, in full use. They suit me better than 47 patent hives which we have in the country.

JOHN FARIS.
Chilhowie Springs, Smyth Co., Va. Nov., 1878.

GETTING BEES OUT OF BOXES, AND SCALE FOR WEIGHING HONEY.

In Nov. GLEANINGS, page 381, friend Balsinger asks the best way to get bees out of surplus boxes. Last year we were troubled with the same thing till brother Scudder, of New Boston, came along and told us of a better plan, as follows: take off your boxes and place them, bottom up, on top of the hive they were taken off from. Take an equal number of empty boxes and turn over those with the bees in, and go about your work of taking off more. In the course of an hour or so, go back to your covered boxes, and you will find nearly all the bees clustered in the empty boxes above; shake these down in front of the hive they came from, and if any bees are left, replace the box for awhile.

Once or twice will get almost every bee out of the boxes. To get out the few bees that still remain, pile your boxes on a table in the honey house, bottom up, and if you have it, place an open bottom nucleus, with a frame of brood or a few bees, on top of the tier of boxes. This will soon draw every bee to the nucleus. By this plan, you are not troubled with robbers.

On page 385, you condemn the spring balance scale, and call it a worthless thing. Now, Novice, *do you know how to use it?* I enclose cut of a scale made by the same firm; we have used one of them for several months and like it *very much.* When I got mine, I ordered a ½ doz., and sold them to neighbors. They all are well pleased with them. My scale has been tested by the store scales and found *perfectly accurate* every time.

How to use it. Place the article to be weighed as near the center of the top plate as you can, then, with your finger, hit the box, plate, or whatever it may be, so as to make it rock backward and forward, thus leaving the rod in the scale loose, to work up or down and give the true weight, as the rocking from side to side obviates its "going by hitches" as you call it.

We are using our scale almost hourly in weighing honey, and it gives perfect satisfaction, if *used right.* Try it again, Novice, and see if it does not work all right.

WILL M. KELLOGG.
Oquawka, Ill., Nov. 20, 1878.

The scales I condemned, friend K., could not be made to work in the way you suggest. I had already written for terms on the kind you use, before receiving your letter and will try and give bee-keepers the very lowest rates on them, either singly or by the dozen. Your plans of getting bees out of boxes are very good. A queen in a nucleus hive, will generally call them, very quickly.

BEES IN OREGON.

I am perfectly delighted with your offer of journal for bees. I will go one better and will ship to any address you may order, a good hive, American frame, straight combs, hybrid bees, and all for GLEANINGS three years. I cannot afford to insure. Don't be partial.

C. WILKINS.
Myrtle Point, Oregon.

Thank you, my friend, but as the express would be $13, on a hive of bees from you, I am afraid I *shall* have to be a little partial. If there is any friend near you who wants bees, I hope we shall be able to strike up a trade.

I decidedly approve of GLEANINGS with its Wheat Heads, Blasted Hopes, Swindles, Growls, Smiles, &c., and although I am fully persuaded of the unsoundness of your theology, yet, because of your love and forbearance for and to your fellow men, I always read your home papers.

H. SMITH.
New Hamburg, Ont., Can.

Thank you, my friend. You yourself have unconsciously summed up the best evidence of the truth of Christianity, which we can have in this world. Cultivate a love to your fellow men, bear with them and forgive them, and if you do not see God face to face, you will certainly feel his love, and approval. Never mind the "theology" part; it will take care of itself.

HOW TO ADVERTISE, AND A WORD IN FAVOR OF FAIRS.

As I am still "green" in the advertising business, would you tell me when to commence, how large an advertisement, and all about it? You know by experience, how to carry on that part of my business better than I do myself. I advertised in the county paper last season, but I don't think it paid very big. I exhibited Italian bees, honey, honey extractor, &c., at our fair this fall, and I think it did me more good than all the blowing in the paper did.

My report for this season is: No. of stocks in the spring, 19; No. on hand now, 34; No. of pounds of extracted honey, 1,200; No. of pounds of section honey, 300; total, 1,500 lbs.

CYRUS MCQUEEN.
Buena Vista, O., Nov. 15, 1878.

I would advertise very cautiously at first, until I was sure it paid; when you are sure it does, venture on a little larger scale, and so on. While an advertisement in our large agricultural papers brings many inquiries, those in county papers and others of that class, are worth little or nothing to a bee-keeper. The best advertisement I know of in the world, is a way of so treating those with whom you have to deal, that they will be personal friends ever afterward. If there are misunderstandings and disagreements, show yourself a hero, in bearing the greatest part of the blame, and do not ever quarrel with any body. This kind of advertising extends all through this world, and reaches I know not how far, into the world to come. If that is the way you did when you went to the fair, no wonder it did you good; if we would all go to the fairs with this spirit, what a glorious thing fairs would be.

Our Homes.

Fear them not therefore; for there is nothing covered, that shall not be revealed; and hid, that shall not be made known.—Math. X; 26.

I NEVER liked secrets, and never wanted to be told one. I do not say this in a boasting way, for it is very likely a sort of a negative virtue, and perhaps I carry it to too great an extreme, in my aversion to secrets for sale, patent rights, etc. I can well remember when I used to feel annoyed at having been forced to give a promise of "not to tell;" but, of late years, when any one enjoins this strict secrecy, I am in the habit of stopping them, until I can explain that I want nothing told me, unless I can have the liberty of repeating it, if my better judgment tells me it should be told. If my friend will not tell me under such conditions, I much prefer to be left in ignorance. Now, please remember I am not asking you to take such a course, unless you choose, but I am simply telling you how I do.

Years ago, I taught school, or tried to teach school, in a rather new country in the western part of this State. One evening, a well to do farmer sent word that he would like me to spend the night with his family. They gave me for supper, a nice plate of honey, yellow butter, and nice bread, with a pitcher of ice cold milk. You see the good woman of the house knew, by past experience, just what would please me most. After supper, a slate and pencil was given me, and I was asked to straighten out an account with a hired girl. The girl herself, the old farmer, and several stalwart sons gathered around the table, as I went on with my "ciphering." When I gave the result, after an hour or more, I well remember how the usually sad face of the girl brightened up. The "boys" had told her that she was in debt to them, as she was leaving her place to go out upon the world, but I said, and the figures said (which wouldn't lie), that they owed her something like $25.00. The old farmer, whom I believe to have been just, even if he was close, paid over the money. I started to go home, to my sister's, but it was late, and a freezing sleet was falling. I was asked to stay all night, and after studying on the probability of some more bread and butter and honey, with my favorite pitcher of ice cold milk, I decided to stay. When I came down in the morning, they were gathered about the blazing fire place. Said one of the boys:

"Sam and Ira had their watches stole last night."

"Why, no!" said I, "where were they?"

"Hanging up over the mantlepiece on them nails."

"But, did no one hear any one in the room?"

"No."

"Yes; I did," said the farmer. "One of you boys came down stairs in the night. Now which one of you was it?"

"It wasn't me!" and "It wasn't me!" said both Tom and Jeff, almost in the same breath. I did not say it was not I, for the idea never occurred to me, that a schoolmaster could be thought of as stealing watches, and I fear I was thinking too much of that breakfast, to take much further notice of it, more than to join in the general talk. After the meal, I walked home over the crisp snow, and was seated by my sister's fire waiting for school time, and reading her magazine the while. I was disturbed after a time, by the entrance of several men. One approached me and said:

"Mr. Root, I would trouble you for your keys."

I arose, book in hand, and stared with open mouth, first at my sister, and then at the man.

"I have orders to search your effects; will you hand me your keys?"

Still I stared in hopeless unconsciousness of the fact that I was accused of having stolen the watches, but my sister, who was gifted like other daughters of Eve, had a tongue and a temper, too, and a regiment of soldiers would not have kept her from talking just then. I cannot remember what she said, but it was to the effect that the poor unconscious boy (I was but 18) had never had a lock and key on any of his earthly possessions in his life; that no such things were needed in the family where he had been brought up, and that any man or woman with two eyes should have known better, after having known him a single hour.

O, my sister, I thank you for your fearless, hearty, and able defence of your younger brother; I thank God, too, for the home and early training I had received; but while I stood there shaking, and rattling the door latch which I had raised to show the constable where my small store of wordly effects were—shaking the door latch because I began to tremble as it slowly dawned on my understanding that I was suspected of being a thief—I utterly forgot that although I did not steal the watches, I had but a few months before stolen a man's strawberries in the dead of night, as I told you a few months ago. My sister never knew this, and will not know it until she reads it on these pages, or she could not have made the constable apologize and hang his head as he did, when he went through with the form of search. It occurs to me now, that my things were in just about such a heap of disorder as those of some other boys, whom I have lately censured pretty severely. In the afternoon, Sam called at the door of our little school house to apologize, and to say that Tom and Jeff were the guilty parties, and that they had just run off on the cars for Toledo.

It is true, that in the house where we seven children were brought up, there was never a lock and key. The outside door might have been locked, but, if it was, I never knew about it, and thus came, I suspect, my dislike of locks or secrets. There was one drawer in the bureau that contained the deed of our little homestead, with other important papers, but even this had no lock on it, unless, forsooth, the simple name "Pa's drawer" were a lock, and lock enough it always seemed to be. If anything was to be kept sacred from every child, it was put in that drawer, and there it stayed.

Well, when I got married, and had a home of my own, I didn't want the doors locked, but always slept soundly, even if the doors were ajar. My wife, on the contrary, never felt easy, until she could feel that everything was safe. Now I am not finding fault, mind you, for were it not for the neat and orderly habits she has taught me in all these years, and her example of always having everything done up well, secure, complete, and safe, I might even now have all my property in the disorder in which the constable found my trunk on that winter's morning. I know my wife has corrected one of the worst failings of my character, and yet we have always disagreed more or less, about having the house "locked up." About sundown, she would have the horse fed, the wood carried in, if the wood-house would hold any more, all litter swept up, and most of all, all the back doors and windows securely bolted. Sometimes I would go out in the apiary in the evening, and then start to get in the back way; on finding one door after the other tight against my impatient pulls, I was sure to get mad. Of course, she always hurried like the wind to let me in, but often I threatened to strip every lock from the "castle," where we two, and the little ones, did abide. As the little "chicks" grew older, they took after mamma a good deal, and many a merry, hearty laugh have I had, at coming home and finding the boots, shoes, cups, hammer, and playthings of all sorts, hung up on nails about the room. I am not sure but that my boy once cried because there were no holes in the saucers, so he could hang them up too. Finally, in following mamma about in her evening duties, they learned to bolt the doors. On coming home to supper tired and fretful—I usually come with a rush, and I am afraid I usually come fretful too—it used to chafe me exceedingly, to be brought up with the front door locked. I scolded and stormed, but still the busy elves would bolt the doors, and as near as I can remember, I scolded my poor wife because the children had such habits. We do not have any locks to doors or bureaus inside, and even the youngest is hindered by nothing of that kind from going anywhere in the house, or taking anything that belongs to the "firm," said firm consisting of us two and the four children.

It was just about 4 years ago, this present winter, that I came home from a walk to my mother's. I do not know that I felt irritable, for my walk Sunday afternoon generally put me in a good humor. By some means, I went in at the back way, or rather I tried to go in, but could not, for the door was bolted. I flushed up quickly, and demanded the door to be opened. Mamma was busy preparing the evening meal, the children were talking, and may God forgive me for listening to the voice of the tempter who whispered, "I would teach them that this thing has gone on long enough, and that, if they do not know who is master here, you are going to show them."

I intended to burst the bolts from their places, but, in my rage and frenzy, I kicked one of the panels out. The next time, I aimed for the center piece of the door, but missed it and kicked out the opposite panel. At the third blow of my foot, I broke the whole center of the door out, and then stood before the affrighted but innocent four, my face livid, and my voice hoarse with passion. My own little Blue Eyes, who had so many times softened these angry moods, seemed to be horror stricken to see her papa in such a state, and, I doubt not, queried in her little mind whether it were really he, or somebody else. My wife had seen me in this state before, and I did not much mind it then, but the three children had never before witnessed such a scene. I could not stand their aggrieved, astonished, and inquiring gaze. Remorse commenced very soon, and I would have given a great deal to have recalled the event, but still I was too proud to say I was sorry, and so I braved it out, and talked as though I had done right, and was justified in the act. I paid a carpenter $6 or $8 to put in a new door, and there the matter dropped. A few weeks afterward, as I then told you on these pages, my life was turned completely over, and instead of fighting these battles against temptation alone, a great strong friend seemed to stand beside me. I cannot remember ever asking my wife's pardon for kicking the door into splinters, for it was a mere trifle compared with other things not quite so——easily complained of.

Just 9 days ago, I came home from a temperance meeting; it was Sunday evening, as before; I walked up to the door briskly, thinking of telling my wife all about the meeting. I turned the knob of the door, but ——it did not come open. I knocked quietly; no one came. I began to get angry. In all these four years, God had lifted me over these little troubles like a parent would a child, but now he seemed to say, "You can get over this yourself, and it will make you strong."

Pretty soon she came down stairs, and was astonished to find the door locked. Our girl had come in before me, and supposing I had gone to bed, had locked the house. I felt cross, but said nothing unkind. There was a little bit of a feeling, as of old, that I would not have the doors locked at all. It was bed time, but before getting into bed, I should have to kneel down, and ask God to bless our little home. It wouldn't be a very pleasant home to my wife, with all the doors unfastened, and I was not in a mood to kneel down. I was cross because she did not sit up and watch the doors for fear some one might come home, and fasten my very great and important self out side, and thus irritate his "majesty." I did not state it so then, but I guess it amounted to about that.

"Why do you not come to bed, husband," said a pleasant voice. "Because" I came very near saying because I wanted to warm my feet, but I knew that was not so, and God knew it was not so. I could not go to bed, because I wasn't in a mood to ask God's forgiveness as well as my wife's for having been impatient. I studied for some way to get around it; it couldn't be done. No climbing over the walls, no way under heaven by which I could get to bed a Christian, but to go down on my knees, as a little child, in perfect obedience.

Now, my friends, you have a fair picture of a man who has resolved to follow Christ, so long as breath shall last, and also a picture of one who rebels, against any such "bondage," as he is apt to call it. Is it bondage? Who was the slave? The one who stood by the splintered door, speaking bitter words to his wife and children, or the man on his knees, at his bedside, promising his Savior in even quiet tones, to try to be gentle, and just to all men, to forgive, as he hoped to be forgiven, and pleading for a strength to conquer, which he knows he hos not got naturally.

Another year has gone, and the time has come to bid adieu to a great many of you perhaps. You have been kind and forbearing with me, and have generously given me the means, with which to go on with this work, which, I hope, is to benefit not only myself but all of you. God has promised to give us every thing we want or need, and that every thing shall be revealed to us, his children, as in the language of my opening text, if we are only faithful and obedient, and it can be given us without doing us harm. Suppose the morning after I smashed the door down I had been given $500; do you suppose it would have made me better? Suppose GLEANINGS had suddenly increased to double its number of subscribers; would it have done me harm or good? I tell you it would have made me a bad man quicker than anything else that could have happened. Go to the boy who is too lazy to work, and who is puffing away at a cigar, lounging on the streets, and give him money, and see what the effect will be. Will it make him industrious? If followed up, it would very likely send him to the penitentiary. Now God is watching you and I; He is anxious to have us good men and women, and when he sees that money will help us to be good, that we will make a good use of it, he will send it without stint. If he sees we use it to do good with, and not to clothe and fix up our poor selves, it will come in sums untold. Many of you know how he gave the money to Mueller to build those Orphan Asylums, until more than a million of dollars had been expended, and it all came in answers to prayer. How many men have we in the world who could be trusted with money in that way? Would it do for God to send it to you or me in that way? What is the use of money? The boys will say "To have fun with"; I do not know but the boys are somewhere near right. Did Mueller have fun in clothing and educating all those orphans? A few days ago, he said that he grew more joyous every year, as he grew older; that at 30, he was more joyous than at 20; at 40, more joyous than at 30; at 50, more joyous still; and at 60, more joyous than he had ever been before in his life. I can readily see how this happiness may grow, and develop, until no tongue can express the joyfulness of such a soul, when summoned to meet the great Being, for whom he has lived and worked all these years.

I used to swear once, when very angry; yes, even since I have been sending you GLEANINGS, month by month. I used sometimes to use all the wicked words I ever knew or had heard of. I well know, too, the fearfully despondent moods that used to come over me then. Do you know what it is, my friend, to hate the sight of every object on the face of the earth? to wish you had never been born? to be aggravated beyond measure at every word you hear spoken? to feel like cursing everything your hands touched, and that all mankind were a pack of fools, thieves, ungainly idiots, etc., and that it would be relief unspeakable, could you get millions of miles away from the whole of them? If so, you have probably had a slight foretaste of hell here on earth. I well remember all about it, but I do not get much of a glimpse of such feelings nowadays; at least, never when I am in the mission work.

A few days ago, I was so much annoyed by cigar stumps and tobacco juice on the floor of our new factory, that I had a card put up, welcoming visitors, but requesting them to throw away the cigars, and spit out their tobacco, before coming in. I presume it was a little unwise, for on Monday morning, I found the front door perfectly covered with tobacco juice that the boys had probably exhausted themselves in expectorating at the obnoxious card.

Was I angry? not in the least; could I have seen the same boys, I should have enjoyed having a talk with them, and I have no fear but that they would have agreed with me, in the end, in principle, if not in practice. True religion and a true love for humanity will make us joyous, even amid persecutions like these. It was but a small job to paint the door over again, and probably I did wrong to put up the card. These same boys have pulled the locks off our buildings, have broken the boat in the pond, have broken the lock repeatedly to the lumber car that they might ride down hill on it Sundays (our side track is on an incline), and when we got a lock so stout they could not break it, they wedged it full of wood, so we could not unlock it ourselves. After the foreman ordered them away, they swore about our Bible class, and got some rotten eggs and threw against my door; I am joyous still, at least the most of the time, and I love humanity, yes, even these boys. With my Savior's help, I am going to come out ahead too, unless I forget myself and get mad. Satan is trying to get me mad, and he has used these boys to do it, but I am determined he shall slip up in the little "speculation," and that I will get the boys away from him, and into the Bible class.

I used to be angered beyond measure, when I heard that Christian people were praying for me. Let us put it in this way; you know me pretty well, and all my circumstances. Are you not anxious I shall go ahead in the way I am now going? Would any one of you like to see me back again, the slave of that awful temper, and those still worse passions? Would any one like me to get "above" my mission Sunday schools, and be glad to hear that the Bible class had got to be an old story, and that I had forgotten all about my work with the boys? Well, praying for each other, is simply expressing the above in words. You know my faults, my friends, and I hope you will not forget to pray that I may not be led astray. May God bless and keep *you* all, in the year to come.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POST-PAID.

MEDINA, DEC. 1, 1878.

If it be possible, as much as lieth in you, live peaceably with all men. Romans, 22d; 18.

◆

No more back Vols. or Nos. wanted, at present.

◆

THE Ohio Central Bee-Keepers' Convention, meets at Columbus, O., Dec. 11, 1878, in the rooms of the State Board of Agriculture, in the State House.

◆

L. C. ROOT has promised us a new smoker, to be made on the same plan as his larger ones, but to be sold for $1.00, by mail, or 85c., by express. From the experience we have had with his work, I think it will be an acquisition.

◆

THE friend who invented the little attachment for extracting pieces of combs, as given on Page 350, Oct. No., was J. D. SLACK, Plaquemine, La. I fear I have been a little careless many times in giving proper credits. Do not hesitate to speak out, if I have, and I, on my part, will try to do better.

◆

BEE literature is now destined to be cheap, it would seem. The *A. B. J.* is virtually reduced to $1.00 (see friend Doolittle's advertisement in this No.), the *Magazine* will probably soon follow suit, and our friend Nellis starts a new journal, in Jan., to be called the *Bee-Keepers' Exchange* (see *his* ad.). This will make the journals come within the means of you all, and will cause a healthy competition that will tend to make the editors all get up early in the morning, and "flax around."

◆

I PRESUME your bees are now already for winter, Be sure that none of the little fellows starve, and if you have been feeding grape sugar very much, keep a close watch over them. While the weather is warm, or if it is in the center of a large colony, I think it just as good food for them as honey; but with very severe cold weather, and a small cluster, it is liable to harden in the combs, so that they may starve to death with plenty all around them.

Please excuse my repeating this so much, but I do not wish any of you to make mistakes in the matter, and loose your bees.

◆

MR. LANGSTROTH is in excellent health and spirits, and the vigorous way in which he is overhauling and scrutinizing, suggesting and adding to, all that has transbired during the interval when he did not read the books and journals, would make one think he must have superhuman powers, or he could not hold out very long. Through all his letters runs a broad vein of love and charity towards all humanity, that has made at least *one* individual, heartily ashamed of the quarrels and controversies he finds us indulging in, as he comes out suddenly from the long sleep, as it were, in which his malady has held him.

As there are some who insist on having the old style L. hive with portico, we are just now rigging machinery, to make a lower story with permanent bottom board, that will take the usual Simplicity hive, for an upper story. These can be used interchangeably with the Simplicity hives, without any confusion. The usual Simplicity cover, fits either story, of course. For shipping bees, for in-door wintering, and for several purposes, these permanent bottom hives are perhaps handier than the loose bottom Simplicities. The disadvantage is, that they can never be used for an upper story, and two of them could not be used as a two story hive. Although they require some more work, and a little more lumber, the price will be the same as a single story of the Simplicity hive. Drawings and directions for making will be given next month, and also in A B C.

◆

I BOUGHT a barrel of honey from neighbor Dean, for 8c., and put the following notice in our county paper:

> CLOVER HONEY.—A barrel of nice white clover honey, just opened—to be sold at 10c. per pound. Bring on your tin cups, pitchers, pails, &c.
> A. I. ROOT.

The result was that I sold the whole, in less than 4 weeks. As it was quite a little task to wait on so many customers and do it nicely, making no mistakes, my mind was turned to the subject of scales. I have investigated many different kinds of scales, and have found some that will do nicely, but they cost from $3 to $5. The little scale mentioned by friend Kellogg, on another page, I think will, perhaps, answer every purpose, and I have made arrangements so as to be able, I think, to furnish them to bee-keepers for $1, by express, or $1.25, by mail. If I cannot get a good article for that price, I will get the necessary machinery, and make them myself. To get extracted honey out of a barrel, we take out one of the heads, and either pour or scoop it out; it is then put into the extractor can (the inside being removed, of course), and the can is then set on a box near the stove. It is set near the stove to keep it melted during cold weather, and on a box of such height, that when the bowl or pitcher is placed on the scale, it will be just under the honey gate. Turn the screw until the dish is just balanced, and then run in honey until the scale shows just enough. One who has never used these scales can form no idea of their convenience, for you can draw just 10c. worth, just a quarter's worth, a dollar's worth, or any quantity you wish, with precision, and without a drop being wasted. The pitcher is not daubed, and there is no need of getting even the tips of your fingers sticky in the least. With the low prices of everything else, I am very well satisfied with 10c. for extracted honey; if it is nice and thick, clover honey, our customers are very well satisfied too, and that is the way I like to do business.

◆

FROM friend Betsinger's report of the fdn. mill with copper rolls, it seems that copper will not answer the purpose. Mr. Washburn cautioned him in the matter when he ordered it made, but he insisted that he must have copper rolls and no other. For the same reason, I presume copper wire will not answer for stiffening the combs, unless we have a thickness of wax at the base, sufficient to cover the wires entirely, as does Capt. Hetherington. This, I think, is out of the question for general use, on account of the expense. By touching your tongue to a piece of copper, you can readily perceive the reason why the bees find it so disagreeable; and I presume enough of this oxide of copper is carried from the moist rolls to the wax, to prevent the bees from using it. When we used soap on the rolls, we found an excess of it would cause the bees to pass it by untouched, when placed in the boxes. Even the use of very fine iron wire, both on my plan and Nellis's, is, at present, rather doubtful; for, although the queen deposits eggs in all the cells, I find, since the brood has been capped over, that many cells along the wire are empty. This is the case with both specimens, and is, I think, a sufficient reason for holding on a little. I believe the greater part of our readers decide that our combs are good enough without wires, but for convenience in shipping bees on new combs, I have not yet given it up. If any of you work it out before I do, all right. Remember we cannot afford any great amount of wax in the cells, and that cloth, paper, and the like, will not answer, because the bees sometimes set to work to dig it all out. Mr. Langstroth has suggested, in a private letter, that thin wood be used, and put through a mill that makes flat bottomed cells. This looks to me, now, the most feasible of anything, but I do not like a flat bottomed cell, and if made of wood, they must be so, unless a great amount of wax is put in the bottoms, and we should then have something quite similar to the wired combs of Hetherington.

◆

In the Oct. No., I made an extract from Mr. Langstroth's book, but omitted to say that the item was a part of an article taken from the *Bienen Zeitung*.

Some time ago, in looking over the book, my eye glanced accidentally on the passage, and I remarked in surprise that grape sugar was nothing so very new after all, for Mr. L. had advised it and directed how to feed it years ago. When I was writing the article in which the quotation is made, I picked up the book in a hurry, and turned to the spot *at the bottom of the page*, where I remembered seeing it, put a pencil mark around the lines I wished copied, and gave it to the proof reader to copy. Now, if those who are inclined to charge me with purposely falsifying will turn to the passage, they will see that both myself and the proof reader were not unusually careless, in overlooking the fact that it was an extract. I now see quotation marks which I overlooked then, and I suppose the proof reader, in making the copy, did the same. The *A. B. J.* in printing Dadant's extract, has omitted nearly a page of matter, and changed the wording so as to make it read "The Rev. Mr. Kline says:" in the very same line where my extract commenced. Shall I say hard words about these friends because they did this, as it seems to me, to damage my character for truthfulness? By no means! The best of us, when in the heat of argument, if we allow ourselves to get so far, are very apt to twist things, and state them unfairly. I know my own weakness in this respect, and I have tried every way I knew how, since this matter came up, to avoid being pulled into it.

I am pretty well acquainted with all there is in Langstroth's book, as well as most of the other bee books. I have a rather indistinct recollection of having at some time, I cannot recall whether after the matter was in print, or whether just before, recalled the matter enough to consider whether it was Mr. L. who experimented with grape sugar, or some one else, and that it should be looked to at once. I cannot be sure, but I rather think I dismissed the matter by saying to myself, if it was not himself, it was at least some one whom he considered good authority, or it would not have been thus left uncontroverted all these years. This was wrong, for I should have hastened to look the matter up, and correct it as soon as possible, with the same alacrity that I should have shown had I been in Dadant's place. I am glad that I am closely watched, for I am sure it will in the end do me good. One of the hardest things I have ever tried to do in all my life, is to learn to tell the truth, the whole truth, and nothing but the truth, under all circumstances, and upon all occasions.

◆

A PART of the Cotton speculation consists in following up their first circular, with a little slip containing the following:

SPECIAL OFFER.

For Thirty Days from November First, I will receive orders at the following reduced prices, my object being to introduce my Controllable Hive and New System of Bee Management, and drive out the Patent Bee Hive Swindlers. This war must continue until worthless Patent Hives cease to exist among intelligent Bee Keepers.

One sample controllable Hive and all fixtures, Feeder, etc., only Four Dollars.

Swarm of Italian Bees with Controllable Hive, etc., only Twelve Dollars.

Swarm of Native Bees with Controllable Hive, etc., only Eight Dollars.

For all further particulars examine large circular connected with this. LIZZIE E. COTTON.

October, 30th, 1878.

◆

NO "DRONES" THERE.

A gentleman living in the northern suburbs secured a hive of bees two or three weeks ago as a nucleus for an apiary, and in the course of ten days he had read ten different works on the honey bee, and invented half a dozen patent hives. The other forenoon a man called at the house on business and was informed by the wife that her husband was out inspecting the bees.

"Is he taking up honey?" inquired the man.

"Oh, no; he's looking to see if there are any drones in the hive."

At that instant both were startled by a series of whoops and yells, and the husband came around the corner of the house on the jump, his hat striking the air on all sides of him. He rushed through the currant bushes and back, rolled over on the grass and lit out for the barn, and the amazed wife shaded her eyes from the sun as she looked after him, and continued in a disappointed tone:

"But I don't believe he found a single drone by the way they stick to him!"—*Detroit Free Press.*

THE above would be an excellent item for those who manufacture smokers. Had he used a smoker, he would have saved the time and strength, needed for the above performances.

CANADA.

I have taken 1,000 lbs. extracted honey from 11 stands and their increase.

I received two, dollar queens from you in June. When they arrived, one was smart and active and her bees are nice bright ones. The other seemed very dull, and would hardly move any. The bees received her kindly, but she died in a few days. My honey was taken from white clover, linden, and buck-wheat.

I use a two story hive which takes the L. frame. I pack my bees away in chaff, on their summer stands, putting each hive in a box about 1½ foot larger than the hive, and leave a small entrance, so they can come out in the spring and work without taking the chaff away until I see fit; I packed them in this way last fall, and they came through in fine shape.

The result of my season is as follows:

Honey sold		$124.00.
Articles bought.		
2 queens, @ $1.25	$2.50.	
20 bee hives, @ $1.60	$32.00.	
14 doz. tin pails, @ 75c	$10.50.	
1.000 labels	$4.50.	
One faucet	.50.	
2 large cans	$2.00.	
Total.	$52.00.	
Net gain.		$64.00.

I also have an increase of 40 combs and 4 stands of bees. Number on hand, 15 stands.

H. E. CHRISTIE.

Oxford Mills, Ontario, Canada. Nov. 20, 1878.

The idea of selling honey in cheap tin pails is one I have often thought of, but never put into practice. If run into them as soon as the honey is settled and ready, and then soldered up, there could be no chance of leakage or breakage. Honey put into barrels is very apt to acquire a bad taste, sooner or later; if put in tin, and soldered up, I think it would keep sweet and nice indefinitely, and if candied, it could be easily melted. Friend C., tell us more about the pails; what do they hold, and where did you get them?

Cash for Beeswax!

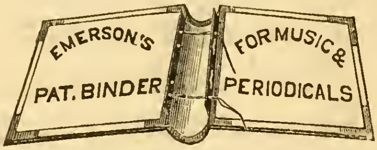
Will pay 25c per lb. for any quantity of nice, clean wax, delivered at our R. R. station.

A. I. ROOT, Medina, O.

Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 25c; per bushel, (60 lbs.) $13.50; ¼ bushel, $7.00; peck, $3.75. If wanted by mail add 18c per lb. for bag and postage.

A. I. ROOT, Medina, Ohio.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for four years), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

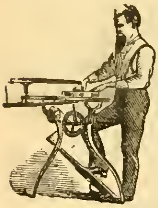
$1.50 per YEAR; CLUBS of 5 or More $1.00.

Send Ten Cents for a Sample Copy of

The American Bee Journal

The Oldest, Largest and Best Bee Paper.

THOMAS G. NEWMAN & SON, CHICAGO.



BARNES' PATENT FOOT POWER MACHINERY! CIRCULAR and SCROLL SAWS. Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making.** It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**

W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

GRAPE SUGAR.

Superior, double refined Grape Sugar, for feeding bees, @ 4c. per lb. in barrels of 375 lbs., and 4½c. in boxes of 50 or 110 lbs.

The above prices are for sugar shipped from Medina. If ordered from the factory, at Davenport, Ia., the price will be ½c. per lb. less. Any amount less than 50 lbs. will be 5c. per lb. Instructions for feeding it to bees sent free. Sample by mail, 10c.

A. I. ROOT, Medina, O.

Tin for Separators and Extractors.

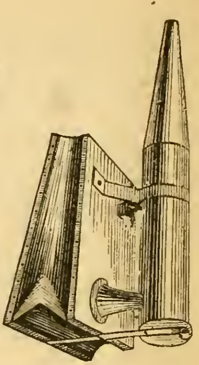
As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators	$6 00
" " sheet, for less than a box	7
IX tin for making Extractors, 14x20, per box	8 50
" " per sheet	9

We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

KING'S DIRECT DRAFT SMOKER,



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Bees. H Roop, Jan to Aug. J R Landes, Jan to Sept. J P H Brown, Jan to Sept. J M Marvin, Jan and Feb. A I Root, year. P L Viallon, Feb to July. E W Hale, Feb to Aug. G W Gates, Feb to Apr. C Dadant, Mar to May and July. C C Vaughn, Mar to May. J Hoffman, Mar and Apr. A Potter, Mar and Apr. W Harvey, Apr to June. Brooks Bro's, Apr

to Sept. S Valentine, May and June. H H Brown, May to Aug. B B Barnum, May to July. J H Nellis, Mar to July. Valentine and Son, Feb to July. A F Moon, Apr to June. W P Henderson, Apr to Sept. O H Townsend, July to Sept. W H Ware, July to Aug. Geo Grimm, Oct to Dec. Geo B Peters, Nov and Dec. Rev G H Child, Nov.

Beeswax. Eckerman & Will, Jan to July. A I Root, July to Dec.

Binders. A I Root, year.

Comb Fdn. Machines. A I Root, year. H Tench, Mar and Apr.

Extractors. A I Root, year. R R Murphy, Feb Mar May and June. M Richardson, Apr and May.

Electrotypes. A I Root, year.

Engraving. Stillman & Co, year.

Footpower Saws. W F & J Barnes, year. A I Root, year.

Glass. A I Root, Oct to Dec.

Grape Sugar. Davenport Glucose Co, Jan to June Nov and Dec. A I Root, year.

Grape Vines. J G Warner, Aug to Oct.

Hives. R R Murphy, Jan Feb and Dec. J Oatman & Sons, Jan to May. M S West, Jan to Nov. J L Parker, year. M Nelson, Jan to June. G W Simmons, year. F M Dickinson, Feb to Apr. G W Marshall, Feb to July. F A Snell, Mar to Nov. W Harvey, Apr to June. M Richardson, Apr to May. J H Nellis, year. S D Reigel, May. B B Barnum, May to July. Valentine & Son, Feb to July. M A Buell, June to July. Fr D Neuenschwander, July. H S Elkins, July to Sept. A A Fradenburg, July and Aug. J L Parker, Oct to Dec. A I Root, year. C McQueen, Dec. F A Salisbury, Dec. Lewis & Parks, Dec.

Honey Boxes. C R Isham, Apr. J E Moore, Sept and Oct.

Honey Jars. C F Muth, Jan Mar May July Sept and Nov. M H Tweed, Sept.

Honey Knives. Bingham & Hetherington, Aug.

Honey Package. J H Martin, Sept.

Honey Trees. A I Root, year.

Imported Queens. Dr J P Brown, Jan to Aug Sept Nov and Dec. D Tremontani, year. C Dadant, Mar to May and July. E W & A H K Blood, Apr to June Aug and Sept. A I Root, year.

Periodicals. Jas Vick, Jan to Apr and Dec. A I Root, year. A J King & Co, year. T G Newman, year. A J Marks, June. J H Nellis, Jan and Dec. G M Doolittle, Dec. G O Tompkins, Dec.

Planers. A I Root, Feb to Dec.

Poultry. J R Landes, Jan to Sept. J M Marvin, Jan and Feb. Valentine & Son, Feb to July. King & White, May and June. W Harvey, Apr to June.

Queens. J R Landes, Jan to Oct. W W Cary, Jan to July. E W Hale, year. D A Pike, Jan. A I Root, year. H H Brown, year. J Shaw & Son, Jan to Nov. E M Hayhurst, year. A Cox, Jan to Aug. J M C Taylor, year. Valentine & Son, Feb to Dec. Dr J P H Brown, year. G W Marshall, Feb to July. J C & H P Sayles, Feb to Aug. P L Viallon, Feb to Dec. G W Gates, Feb to Apr. T G McGaw, Feb to May, July to Sept. C Dadant, Mar to May and July. H Alley, Mar to Sept. O H Townsend, Mar to May, July to Sept. G H Mackey, Mar. J E Walcher, Mar to Sept. J B Keeler, Mar to Sept. E L Rozier, Mar to Sept. F A Snell, Mar to June. M Parse, Apr and July. A F Moon, Apr to June. J A Buchanan, Apr to June, and Aug. W Harvey, Apr to June. W P Henderson, Apr to Sept. J Oatman, Apr to Sept. J T Scott, Apr to Oct. C H Stordock, Apr to Aug. J A Bingham, Apr to Oct. M Wyrick, Apr to Oct. S Valentine, May and June. C C Vaughn, Mar to May. M Nevins, May. Ha Michener, May to Oct. J T Wilson, May to Nov. E B Plunkett, May to Sept. B B Barnum, May to July. G E Clark, June to Aug. Williamson & Bro, June to Oct. H F Smyser, June. R Stehle, Apr to July. R Ferris, June. C McClave, July and Aug. H S Elkins, July to Oct. W C Gillet, July and Aug. H S Hampton, July and Aug. W Hollam, July and Aug. W D Wright, Aug and Sept. C H Wood, Aug.

Roses. B A Elliot & Co, Mar. J C Wood & Bro, April.

Sections. J Oatman & Sons, Jan to May. Smith & Buell, Mar. R Stehle, Apr to July. W D Parker, May and June. J H Nellis, Feb to Sept. A I Root, year. F A Salisbury, Dec. Lewis & Parks, Dec. R R Murphy, Dec.

Seeds. C W Leah, Jan. C F Lane, Feb to Apr. A C Nellis, Mar and Apr. C F Muth, Feb and Mar. A I Root, year. J Vick, Dec.

Smokers. T F Bingham, Apr to Dec. L C Root, May to Nov. A J King, June to Dec. A I Root, year.

Stamps. A I Root, Nov and Dec.

Supplies. J Oatman & Sons, Jan to May. Valentine & Son, Feb to July. G W Marshall, Feb to July. J H Nellis, Jan to Sept and Dec. H Alley, Mar and Apr. J C & H P Sayles, Feb to Aug. H Tench, Mar and Apr. P L Viallon, Feb to July. M Richardson, Apr and May. J B LaMontague, May. B B Barnum, May to July. M A Buell, June and July. A I Root, year. F A Salisbury, Dec.

Tin. A I Root, Apr to Dec.

Wanted. F G McGavock, Feb. H Palmer, Feb. J M Kauffman, Apr. F E Townsend, May. "B," June. C L Stratton, Sept. Rev G H Child, Nov.

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TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Any of them sent post-paid on rec'pt of price.

Names of Premium Articles.	*Prices of Premiums*	*Number of Subscribers required at* 75c.	*or at* 1.00
1—*A B C of Bee Culture, Part First*	.25	5	2
2—*Lithograph of Apiary, Implements, etc.*	.25	5	2
3—*Photograph of House Apiary*	.25	5	
4—"*That Present,*" *Novice and Blue Eyes*	.25	5	2
5—*Emerson's Binder for* GLEANINGS, *will hold 3 Volumes*	.50	6	
6— " " *better quality*	.60		3
7—*Pocket Magnifying Glass*	.60	7	3
8—*First or second Volume of* GLEANINGS	.75		
9—*Best quality Emerson's Binder for*			4
GLEANINGS	.75	8	4
10—*Double Lens Magnifier, on 3 brass feet*	1.00	9	4
11—*Photo Medley, Bee-Keepers of America*	1.00	9	6
12—*First and second Vol. of* GLEANINGS	1,50	10	
13—*A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box*	3 15	20	8
14—*Opera Glass for Bee Hunting*	$5.00	25	10
15—*American Silver (Waltham) Watch*	$10.00	50	20

Machinery for Making Section Boxes.

There is such a demand for Saws and Mandrels for this purpose, that I have been obliged to have them made expressly for the work. A B C, Part II, considers the whole matter. A mandrel, suitable for holding the whole 8 saws at once, must be very strong and heavy, or you will have much trouble with the bearings getting hot. Such a mandrel, including 3 in. saws and washers, will cost $30.00. For only 4 saws, a lighter mandrel will do, and the whole rig will cost $16.00, with 4 inch saws. A single saw can be run on the light $5.00 mandrel, and the entire expense will be only $6.50. The latter can be sent by mail, for 70c. extra. Four inch saws, $1.50 each; 5 in. $2.00 each. Steel washers accurately ground to go between saws, 50c. each. A. I. ROOT.

POCKET RULES.

Since writing about the importance of each person's having a rule of his own, I have written to the manufacturers of rules, and find I can get them, by the quantity, so as to send you a very pretty, 1 foot, boxwood rule, 4 fold, for the small sum of only 12c.; and a 2 foot rule, same kind, for only 20c.

A. I. ROOT, Medina, O.